Thesis 1949
Morrison, Robert L.

Prognosis of Shorthand Achievement at Watertown High School.

BOSTON UNIVERSITY

SCHOOL OF EDUCATION

Thesis

PROGNOSIS OF SHORTHAND ACHIEVEMENT AT WATERTOWN HIGH SCHOOL WATERTOWN, MASSACHUSETTS

Submitted by

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(B. S. in Ed., Boston University, 1949)

In partial fulfillment of the requirements for

the degree of Master of Education

1949

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ACKNOWLEDGEMENTS

To Professor Lester I. Sluder, School of Education, Boston University, the writer expresses sincere appreciation for his guidance and encouragement in the writing of this thesis. Appreciation is also expressed to Mr. Bertram H. Holland, Headmaster of Watertown High School, and Mr. Edward B. Colbert, Director of Measurement and Guidance, Watertown Public Schools, for the cooperation given the writer in securing the data for the study. Special thanks are due also to the teachers and pupils in Watertown High School who so willingly cooperated.

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CHAPTER I

INTRODUCTION

Statement of the Problem

The purpose of this study was to determine the prognostic value of selected factors in predicting achievement of students enrolled in Gregg Shorthand at Watertown Senior High School, Watertown, Massachusetts.

Determining which students are most likely to succeed in the stenographic curriculum is one of the major problems of guidance in all secondary schools where that curriculum is offered. With the increasing popularity of Stenographic subjects, large numbers of students enrolling in shorthand have either failed to meet the requirements of the course, or have failed to meet employment standards. The development of means for predicting which students may best profit from the study of shorthand has not kept pace with the growing need for prognosis. Lacking reliable prognostic devices, schools have established systems for predicting achievement in shorthand based upon various combinations of factors regarding each individual student. Such a plan has been developed at Watertown High School and has been quite successful in that failures have been considerably reduced in first-year shorthand and virtually eliminated in second-year shorthand. A statistical study of the value of the various prognostic factors used in this guidance plan has been considered worth while in that such information should be of significance to educators who are seeking answers to some of the problems of shorthand prognosis.

Analysis of the Problem

Toward the solution of the problem as stated, this investigation has attempted to answer the following specific questions:

1. What is the degree of correlation existing between achievement in first-year shorthand as measured by a reliable achievement test and the following factors:

   (a) Intelligence Quotient

   (b) General Scholastic Achievement

   (c) Cooperative English tests A, B, and C

   (d) Sophomore English marks

   (e) Foreign Language marks

   (f) Subjective trait ratings

2. What is the degree of correlation existing between achievement in second-year shorthand as measured by a reliable achievement test and the following factors:

   (a) Intelligence Quotient

   (b) General Scholastic Achievement

   (c) Cooperative English tests A, B, and C

   (d) Junior English marks

   (e) Foreign Language marks

   (f) Subjective trait ratings

   (g) First-year Shorthand marks

3. What conclusions may be drawn from these findings as to the prognostic value of the various factors for predicting achievement in shorthand.

Definition of Terms

In order to maintain uniformity in the interpretations of the various terms that are used throughout the report, the following definitions are provided as they apply to this study.

Coefficient of Correlation (r): The degree of relationship existing between two or more measured variables, ranging from a perfect positive correlation of +1.0 to a perfect negative correlation of -1.0.[1]

(As a general guide to interpretation, Haynes states that when r falls between 0 and ±.20, relationship is negligible; that when r falls between ±.20 and ±.40, relationship is low; that when r falls between ±.40 and ±.60, relationship is definite but relatively low; that when r falls between ±.60 and ±.80, relationship is marked to substantial; and when r falls between ±.80 and ±1.0, relationship is high to perfect positive or perfect negative correlation).[2]

Curriculum: A sequence of subjects required for graduation in a specific field of study.

Intelligence Quotient (I. Q.): The ratio between mental age and chronological age. IQ = 100 MA/CA.[3]

Prognosis: Prediction of future success in specific subjects or fields.[4]

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[1]Haynes, B. R., Broom, M. E., Hardaway, Mathilde, Tests and Measurements in Business Education, South-Western Publishing Company, Cincinnati, 1940, p. 27.

[2]Ibid, p. 94.

[3]Greene, Harry A., Jorgensen, Albert N., Gergerich, J. Raymond, Measurement and Evaluation in Secondary School, Lomans, Green & Company, New York, 1943, p. 644.

[4]Ibid, p. 647.

Reliability: The degree to which a test measures what it does measure; consistency of measurement.[5]

Standardized test: A test for which the exercises have been carefully selected and evaluated and which is accompanied by norms giving average performances of large numbers of pupils tested.[6]

Validity: The degree to which a test measures what it purports to measure.[7]

Justification of the Problem

The problem of increased enrollments and failures has been greatly in evidence. In 1938 Turse[8], a leading contributor in the area of prognosis, wrote:

> The need for some reliable method of selecting shorthand pupils has frequently been expressed by leading commercial educators. The placement and follow-up surveys of local high school commercial departments and trends revealed by federal vocational statistics have indicated the schools' relative overemphasis upon shorthand instruction insofar as general employment possibilities are concerned . . . it is reasonable to assume that if fewer pupils should be encouraged to study the subjects, only those should be encouraged who are most likely to succeed in its mastery.

Subsequent federal vocational statistics have indicated an increasing number of high school students being trained in business education courses, an alarming number of which have not been qualified for the jobs for which they were trained. The following statement from the U. S. Office of Education was issued in 1943:

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[5]Ibid, p. 648.

[6]Ibid, p. 650.

[7]Ibid, p. 651.

[8]Turse, Paul L., "Problems in Shorthand Prognosis", The Journal of Business Education, vol. 13, May, 1938, p. 17.

> The public schools of the nation have been, and still are, offering training in commercial courses to many more persons than could be absorbed in office positions by business and government. About 13,000 public high schools offer commercial courses, in which 1,000,000 pupils are enrolled in typewriting and approximately 750,000 pupils in shorthand and bookkeeping. Unfortunately, however, less than 50 per cent of those who complete a commercial course are sufficiently well trained to meet the minimum employment standards of business and of government.[9]

The problem of adjusting school requirements to meet those of business so that graduates will be properly trained and the effects of wartime employment on this problem are beyond the scope of this study. However, as the standards of business education are raised to meet employment requirements, it is evident that greater care must be used in predicting which students will succeed in the business course.

Of the various business subjects studied in high school, shorthand holds the doubtful distinction of having the highest number of failures per student. The results of a study in 1940 of failures in all high school subjects for the city of New York showed the mortality rate in shorthand to be exceeded only by that in mathematics.[10]

Attempts have been made to devise aptitude tests which would predict achievement in the study of shorthand, but they have met with little success. The Hoke Prognostic Test of Stenographic Ability[11] has been in use for more than twenty years, but its validity has been questioned by researchers.[12]

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[9]Vocational Division of the U. S. Office of Education, "Vocational Training Problems When the War Ends," Business Education World, vol. 20, October, 1943, p. 82.

[10]City of New York, Forty-second Report of the Superintendent of Schools, City of New York, Statistical Section, School Year 1939-40, p. 243.

[11]Hoke, Elmer R., Hoke Prognostic Test of Stenographic Ability, Gregg Publishing Company, New York.

[12]Blanchard, Clyde I., "Results of the Hoke-Rollinson Research Study," American Shorthand Teacher, vol. 9, October, 1928, pp. 37-39, 44.

The Turse Shorthand Aptitude Test,[13] published in 1940, held for a time the hopes of many persons interested in the problem, but recent research by Jack[14] and Youngerman[15] tends to indicate that this test is of little value as a sole determinant of success in shorthand.

Some schools give short "try-out", or exploratory, courses in shorthand in order to determine the student's aptitude for the subject. Others object to this procedure on the grounds that the ability to learn the symbols and principles of beginning shorthand does not reflect the ability to take rapid dictation and transcribe it in good grammatical form. As yet, there has been no conclusive proof presented as to the reliability of the exploratory course for prognosis in shorthand. Since many students successfully complete the first semester of shorthand and fail in succeeding semesters, the objections to exploratory courses seem justified.

A particular level of achievement in other school subjects, particularly English, has been required by many schools as a prerequisite to electing shorthand. Results of intelligence tests and standardized achievement tests are also used. From a survey of 235 high schools in Massachusetts having business education departments, Keily reported the following information relative to shorthand prognosis:

> Twenty-two schools give exploratory courses in shorthand . . . Eighty-three schools have definite requirements that must be met before

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[13]Turse, Paul L., Turse Shorthand Aptitude Test, World Book Company, Yonkers-on-Hudson, New York, 1940.

[14]Jack, Melvin C., A Study of the Turse Shorthand Aptitude Test, Master's Thesis, State College, Amherst, Massachusetts, 1946.

[15]Youngerman, Marie E., Shorthand Prognosis Based on a Study of the Turse Shorthand Aptitude Test, Master's Thesis, Boston University, 1947.

> students are permitted to study shorthand. These prerequisites vary greatly from a required intelligence quotient of 100 to a specific requirement in English, from C to B or 80, or specific scores on standardized tests, some of which are E.R.C. Stenographic Aptitude, Turse, Hoke, Detroit Clerical, and Stanford Achievement. Several schools insisted on a C or B grade in first-year typewriting.[16]

Approximately 60 per cent of the schools that were included in this survey had no requirements whatever for admission to first-year shorthand. Commenting on this, Keily[17] says that "it is accordingly not surprising to note the large number of eliminations from first-year to second-year shorthand". In the area of stenography, where failures have been particularly apparent, the obligation on the part of the school to develop and evaluate a system of prognosis in shorthand is obvious.

Organization of Chapters

Interpretation of the findings of this investigation must be made in the light of the previous research which has been done in this area, as well as the background and procedures of this study. In Chapter II, pertinent information from previous research has been compiled. Chapter III provides the setting and background for this study. Specific procedures of the investigation have been outlined in Chapter IV. Analysis and Interpretation of the data is made in Chapter V. Findings and Conclusions are presented in a final chapter.

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[16]Keily, Helen J., "Commercial Education in Massachusetts High Schools", The Balance Sheet, vol. 18, February, 1947, p. 25.

[17]Ibid, p. 25.

CHAPTER II

PREVIOUS RESEARCH IN SHORTHAND PROGNOSIS

A considerable number of studies employing research techniques have been made to determine relationships between achievement in shorthand and various predictive factors. The findings of these studies have not revealed positive results as is indicated by the present critical lack of effective prognostic materials for shorthand. Very little agreement has appeared among investigators as to the relative values of the various factors tested. Contradictions have been apparent between studies that have tested identical factors. Although such discrepencies may be due in part to variations in investigating procedures, an absence of the reliability of individual factors is indicated.

The purpose of this chapter will not be to analyze all previous research in shorthand prognosis but to present as a background for the present study the results of some of the most pertinent investigations.

Pioneering the study in this area, Rogers[1] reported in 1917 the results of a study of relationships between certain mental ability tests and achievement in shorthand. Midyear shorthand marks of forty-five Columbia University students were correlated with scores on the various tests. Coefficients of correlation ranged from +.07 on the number-checking test to +.46 on the hard-directions test. Certain combined correlations ranged from +.40 to +.63. Results of all the tests were compared with marks on examinations

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[1]Rogers, H. W., "Psychological Tests for Stenographers and Typists", Journal of Applied Psychology, vol. 1, pp. 268-274, September, 1917.

in grammar, resulting in a correlation of +.53. Most of these relationships range from negligible to relatively low correlation. Rogers was of the belief that under more favorable investigating conditions, higher correlations would be obtained.

Several years later, in 1921, Bills[2] conducted a similar investigation among eighty stenography students at Carnegie Technical High School. Tests administered were a general intelligence test, a special aptitude test in shorthand and typewriting, and the Downey Will-Temperament Test. By comparing results of the tests with success in the stenographic course and probable success in the business world as determined by the recommendations of teachers after five months of observing the students, Bills[3] arrived at the following conclusions:

1. A battery of tests is more effective both in eliminating failures and in picking successes than any single test.

2. Of the single tests, General Intelligence is the most efficient for eliminating failures.

3. Of single tests, the Special Ability test is more efficient for selecting successes.

4. Failures can be predicted by the tests with over 85% accuracy.

5. Successful stenographers can be selected.

Ohmann[4], in 1924, made a study of the relationship between scores on a series of ten tests and achievement in shorthand. The criterion for shorthand achievement was the Blackstone Stenographic Proficiency Test,

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[2]Bills, M. A., "A Test for Use in the Selection of Comptometer Operators and Stenographers", Journal of Applied Psychology, vol. 5, September, 1921, pp. 275-283.

[3]Ibid, p. 283.

[4]Ohmann, Oliver A., The Measurement of Natural Capacity for Skill in Stenography, Master's Thesis, State University of Iowa, 1924.

which consisted of dictation and transcription of a business letter. The study included 225 high school students enrolled in first, second, and third year shorthand. Correlations between shorthand achievement and each of the tests were low, the highest being +.37 for both the motility test and the language test. By using the best combination of scores on the language, motility, vocabulary, spelling, and intelligence tests, a correlation of +.61 was obtained with achievement in shorthand.

One of the most comprehensive investigations in shorthand prognosis was carried out in 1928 by Blanchard[5]. More than twelve hundred students in twenty-six cities were given the Hoke Prognostic Test of Stenographic Ability. The results of the Hoke Test were correlated with the scores received by these students on the Rollinson Diagnostic Shorthand Test, Lesson 4, and the resulting correlation was +.23. As an alternate criterion of shorthand achievement, the students' final shorthand mark for the first semester was used. The correlation of marks with the Hoke Test was +.24.

Eyster's experiment, carried out over a ten-year period at Fort Wayne, Indiana, high school, was probably the most successful in terms of positive results of any study yet made in shorthand prognosis. A comparison was made between the achievement of pupils electing shorthand over a five-year period and the achievement of pupils who were given guidance service in electing shorthand in the succeeding five-year period. The guidance service being evaluated was based upon the following prognostic factors:

1. Mental ability test scores.
2. Average mark in English Composition.
3. Average high school mark excluding English.

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[5]Blanchard, loc. cit.

4. The Hoke Prognostic Test of Stenographic Ability.

5. Teachers' subjective trait ratings.[6]

The guidance counselor, after considering this combination of factors for all students desiring the stenographic curriculum, classified the students into three groups: (1) those who were "approved" to elect the course; (2) those who were "warned" that they had a 50-50 chance; and (3) those who were classified as "inadvisable" to take the course.

Before counseling service was given, 109 pupils who were classified "inadvisable" took shorthand. Of these, 102 failed and the other seven left school during the year. Of 370 "approved", 353 passed, nine failed, and eight left school. Of 138 "warned", sixty-five passed, sixty-eight failed, and five left school.

After counseling service was given to 108 pupils who were classified as "inadvisable", only six took the course. Of these, five failed and one left school. Of 206 "approved", three failed, 197 passed, and six left school. Of forty-one "warned", twenty failed, seventeen passed, and four left school.

From these figures it can be seen that prediction of failures by this plan was almost perfect. Determining the top group was slightly less perfect. Although there was a rather large middle group for whom prediction of success or failure was doubtful, the knowledge of such a classification is of value to the student in making educational choices. Eyster reported that during the experimental period when the guidance plan was used, failures in

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[6]Eyster, Elvin S., "Prognosis of School Success in Shorthand", National Business Education Quarterly, vol. 7, December, 1938, pp. 31-34.

shorthand dropped from 29 per cent to 11.1 per cent. He further revealed that the level of achievement in shorthand classes increased greatly.

Sherman[7] sought to establish means of prognosis in shorthand by making a careful analysis of functions involved in writing shorthand and determining the relationship between those factors and shorthand achievement. Correlations obtained between the various factors and first-semester shorthand marks were as follows:

Penmanship speed	+.266
Penmanship quality	+.179
Speed of motor reaction	+.401
Reading ability	-.017
Intelligence quotient	+.218
Typewriting achievement	+.443
Average English mark	+.543
General scholastic average	+.606

The only factor bordering upon a marked relationship with the criterion is the general scholastic average. This correlation would tend to indicate that some of the abilities necessary for success in shorthand are to be found among the abilities necessary for success in school in general. The other relationships appear to give little help in isolating those abilities applying particularly to success in shorthand.

Because of its obvious relationship with the transcription of shorthand, ability in English has received much consideration as a prerequisite to the study of shorthand. Numerous investigators have attempted to determine by statistical studies the value of English ability for predicting success in shorthand. Results have varied considerably. Mandell found a correlation of +.296 between shorthand achievement and English marks and the

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[7]Sherman, Marsdon A., "A Study of Prognosis in Shorthand", The Business Education World, vol. 22, April, 1942, p. 696.

negligible correlation of +.01 between shorthand and tests of language usage.[8] At the other extreme, Dennis[9] found correlations as high as +.81 to exist between shorthand achievement and English marks.

The ability to master foreign language studies has also been considered as indicating ability to succeed in the study of shorthand. In a study made by Heil[10] in 1936, correlations between marks in foreign languages and marks in stenography were found to range from +.46 to +.69. More recently, Spellman[11], in a study of the relationship between shorthand marks and marks in other subjects of college students, found the highest correlation (+.46) to exist between shorthand achievement and marks in foreign languages. Although this relationship is relatively low, foreign language marks showed a closer relationship to shorthand than any other school marks. Spellman[12] offers the following in the way of explanation:

> There must be present in both (shorthand and foreign languages) factors that are similar in the learning process. The most reasonable explanation for this higher correlation seems to lie in the fact that foreign language and shorthand are very largely new language subjects -- both requiring the mastery of new symbols and word forms.

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[8]Mandell, Gerald, Prognosis in Shorthand, Master's Thesis, Temple University, 1940.

[9]Dennis, Esther, A Study of Available Measures of Prognosticating Success in Shorthand of High School Students, Master's Thesis, Whittenberg College, 1929.

[10]Heil, Margaret E., The Value of the I.Q. and Teachers' Marks in Certain High School Subjects for Predicting Teachers' Marks in Stenography, Master's Thesis, University of Louisville, 1936.

[11]Spellman, Leola B., A Statistical Analysis of Shorthand Grades As Related to Grades in Academic Subjects on the College Level, Master's Thesis, Oklahoma Agricultural and Mechanical College, 1945.

[12]Ibid.

Of recent attempts to evaluate psychological tests as prognostic devices for shorthand, Osborne's study[13] is perhaps the most comprehensive. Based upon 139 pupils in New York high schools, her investigation had for its purpose determining relationships between five psychological tests and shorthand achievement and between chronological age and shorthand achievement. The Carmichael Shorthand Learning Test, Semester I, was used for measuring achievement in shorthand.

The single test giving the highest correlation with shorthand achievement (+.3765) was the Otis Self-Administering Test of Mental Ability. This relationship is lower than that reported for intelligence by most investigators. Correlation with the Institute of Educational Research General Clerical Test was practically the same (+.3757). The Iowa Silent Reading Test gave a slightly lower correlation with the criterion (+.3577). Correlations between the criterion and both the Minnesota Paper Form Board Test and the Gates Visual Perception Test were negligible. A negative correlation (-.1868) was obtained between chronological age and achievement in shorthand. The coefficient of multiple correlation (+.4343) indicated that the combination of test scores and chronological age does not form a basis for prediction of success in shorthand.

In summing up the results of her study, Osborne[14] says:

> The definite conclusion to be formed from the analysis of the data in this study is that none of the correlations between the shorthand criterion and single tests or between the criterion and combinations of tests is high enough to make prediction valuable except in the negative sense.

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[13]Osborne, Agnes E., The Relationship Between Certain Psychological Tests and Shorthand Achievement, Teachers College, Columbia University, New York, 1943.

[14]Ibid, p. 53.

An overall view of the research in shorthand prognosis may be obtained from Anderson's analysis of research in shorthand and transcription[15]. Included in her analysis were forty-four prognostic experiments using batteries or tests or single achievement factors. The number of cases in these studies ranged from 28 to 1,279. Forty-five per cent of the studies used from 100 to 200 cases. Results of the analysis were reported as follows:

1. Most investigators reported some relationship between shorthand achievement and intelligence.

2. Several investigators obtained low correlations between the Hoke Prognostic Test of Stenographic Ability and shorthand marks. Investigators did not agree on the predictive value of the Turse Shorthand Aptitude Test.

3. Correlations between shorthand achievement and English marks and English tests given were from $+.425$ to $+.707$.

4. Correlations with vocabulary scores were from $+.40$ to $+.55$.

5. Correlations with foreign language marks were from $+.55$ to $+.759$.

6. Investigators have generally agreed that a battery of tests is more effective as a basis for prediction than a single test. The correlations between scores on batteries and scores in shorthand have ranged from $+.61$ to $+.76$.[16]

These findings indicate that the research in shorthand prognosis has been far from conclusive. The variations in investigating procedures have been suggested as affecting the lack of agreement among investigators who have tested the same factors. Anderson suggests that more consistent results might be obtained if more time were given to the selection of the criterion of shorthand achievement. In the studies analyzed, she found the

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[15]Anderson, Ruth I., An Analysis and Classification of Research in Shorthand and Transcription, Doctoral Dissertation, Indiana University, 1946.

[16]Ibid.

criteria to include teachers marks, theory tests, scores on dictation and transcription tests, examination marks, and teachers' ratings of ability.

Regarding the implications of her findings for future investigations in shorthand prognosis, Anderson[17] had the following to say:

> In only one study has extensive use been made of trait rating scales. Future investigators might consider the possibility of further study of the value of trait rating scales in prognosis. Another predictive factor which might be used is personality. In only two studies was this factor considered, and the findings reported were in agreement.
>
> There is some indication that marks in foreign language and scholastic achievement are factors which might strengthen a prognostic battery. A need exists to determine definitely the extent to which success in beginning shorthand is indicative of success in advanced shorthand.

Reviewing the results of previous research in shorthand prognosis gives little encouragement as to the hopefulness of being able to predict achievement in shorthand. Research, however fruitless it may be, provides the groundwork and points the way to more successful future research. Each study in an area of research must be built upon what has gone before in order for it to add a higher rung in the ladder that is to lead eventually to a successful solution of the problem.

Inconclusive as past research in shorthand prognosis is, some factors appear consistently low in their relationships to shorthand achievement. Such factors would be eliminated from further research. Past research has indicated that the abilities necessary for learning shorthand are many and complex; a combination of factors have consistently given better results than any single prognostic factor. Past research has shown the inadequacy of using arbitrary measures of achievement in shorthand; the necessity for more reliable criteria has been made apparent.

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[17]Ibid.

The procedures used in the present study for determining the prognostic value of selected factors for determining shorthand achievement have incorporated where possible those findings from previous research which would lend to the value of this investigation.

CHAPTER III

BACKGROUND OF THE STUDY

This investigation was made at the public senior high school, Watertown, Massachusetts. Watertown is located in the Boston Metropolitan area, six miles west of Boston. In 1940, the United States Census reported a total population of 35,427. Foreign born were reported to be 8,284, or 23.38 per cent of the total population. Of the foreign born, the largest number was Italian with 1,725, or 20.82 per cent of the total foreign born. The principal business activity of the town was manufacturing, from which approximately two-thirds of the total payroll was derived. For a more detailed picture of the town providing the background for this study, see Appendix A, Community Statistical Abstract.

The senior high school consists of grades ten through twelve. At the time of this study the total enrollment was slightly over 1,000 students. Six curricula were offered: college, general, industrial arts, stenographic, bookkeeping, and clerical.

The college and general curricula were designed for those students seeking a broad, cultural background without specialization on the secondary school level. Students who intended to enter colleges, technical, or professional schools upon graduation from high school were encouraged to elect one of these curricula.

The industrial arts curriculum provided an opportunity for exploration and specialization in several kinds of shop work together with a basic general cultural education.

The three business education curricula provided vocational training in stenography, bookkeeping, and clerical work together with general

education. In the tenth year, the subjects for the three curricula were the same, with the emphasis placed on acquiring certain basic skills and knowledges with which to work. Specialized training was given in the eleventh and twelfth years with emphasis given, respectively, to shorthand and transcription, advanced bookkeeping, and office practice.

A detailed outline of the program of studies for Watertown High School may be found in Appendix B.

First-year Shorthand at Watertown High School was a course devoted to the study of Gregg Shorthand with some dictation practice. It was presented in the eleventh grade, meeting five forty-minute periods a week throughout the year.

Second-year Shorthand was devoted to building skill in taking dictation, including a review of the principles of Gregg Shorthand. Special attention was given to English fundamentals necessary to transcription. Transcribing of shorthand materials took place in the typewriting class that immediately followed the shorthand class. The course was offered in the twelfth grade, meeting five forty-minute periods a week throughout the year.

The marking system made use of the symbols A, B, C, and D, with plus and minus signs to indicate a high or low mark within the letter range. The letter marks were interpreted as follows: A--Excellent, B--Good, C--Passing, and D--Failing.

The responsibility for providing guidance to the students in the schools of Watertown was placed in the hands of a Director of Measurement and Guidance. He supervised the guidance activities in the various schools, and coordinated the town-wide program in such a way that guidance records might follow the pupils from pre-elementary school through high school graduation. The guidance and counseling service was considered a most

important phase of the school program. Specially trained counselors were available in the junior high schools as well as the senior high school for the purpose of serving the individual needs of each student. Psychological and achievement tests, and interest and aptitude tests were given at different intervals in the school career of the student, beginning in the elementary grades. The results of such tests, when carefully analyzed and interpreted in the light of the school record and the vocational aims of the student, supplied valuable information by which the counselor would help the student understand his abilities, interests, and needs. Personal conferences were conducted between the student and counselor in periods set aside for this purpose in the school day, at which times the counselor interpreted information for the student and helped him in making suitable plans.

Counselors also held group meetings with students having common interest factors. These meetings served the following purposes:

(1) Explanation of private interviews that are to take place in the following weeks. Students were asked to prepare for conferences by making notes of subjects they would like to discuss.

(2) Orientation of sophomores.

(3) Explanation of testing program and motivation for same.

(4) Sources of educational and occupational information such as college entrance requirements, job opportunities, and job requirements.

The guidance office in each school also served as a functional library of education and occupational literature. Materials provided for the students included such things as college catalogs, information on college requirements and scholarships, occupational books, pamphlets,

magazines, references on careers, occupational opportunities, trade school and vocational school information.

Another important part of the guidance work was the placement service carried on by the Director. Students were put in contact with after-school and summer-time jobs while they were students, and full-time positions upon graduation. Follow-up studies were also made of graduates after leaving school and advice and counsel on educational and job problems were made available to former students.

The present study attempted to evaluate a small portion of this extensive guidance program--that of helping those students select the stenographic curriculum who will be most likely to succeed in the study of shorthand, which is an important subject of that curriculum. Before selecting one of the three areas of specialization beginning in the eleventh grade, the business student had a conference with his counselor. The counselor, from the cumulative record of the student, interpreted facts which would help the student determine in which curriculum he would be most likely to succeed. If the student desired to enroll in the stenographic curriculum and his records indicated that he was not likely to be successful in that choice, he was encouraged to elect the bookkeeping or clerical curriculum. Most students and parents recognized the importance of the proper choice of a curriculum. If, however, the original choice was insisted upon, the student was allowed to go ahead with it. If the student did not do creditable work in shorthand during the eleventh year, he was not allowed to continue the stenographic course in the twelfth year.

The primary factors which were considered by the counselor in determining a student's probable aptitude for shorthand and stenography were as follows:

1. Intelligence Quotient as determined by the Pintner General Ability Tests, Verbal Series (Form A).
2. Average Scholastic Achievement expressed in terms of class rank.
3. Average Scholastic Achievement in terms of rank among students in the business department.
4. Scores of Cooperative English Tests A, B, and C, administered in the Tenth and Eleventh Grades.
5. English Marks assigned by teachers.
6. Foreign Language Marks assigned by teachers.
7. Subjective Trait Ratings of each student obtained from the average of ratings by five to seven teachers on each of the following traits:

   Personality
   Appearance
   Initiative
   Reliability
   Courtesy
   Cooperation
   Self-Control
   Work Habits

8. Shorthand I Marks (for Shorthand II).

The procedures by which these factors were evaluated for predicting achievement in shorthand is outlined in the following chapter.

CHAPTER IV

PROCEDURES

A total of 114 students were included in this investigation. Sixty-eight of these students were enrolled in Shorthand I and 46 were enrolled in Shorthand II during the school year 1948-49.

The following procedures were used in an attempt to determine the answers to the questions arising from the problem of this study:

1. The Carmichael Shorthand Learning Test, Semester I, was administered to the first-year shorthand students approximately three weeks after the mid-year marking period to determine achievement in Shorthand I.
2. The Turse-Durost Stenographic Achievement Test, Form A, was administered to the second-year shorthand students approximately three weeks after the mid-year marking period to determine achievement in Shorthand II.
3. The selected prognostic factors were tabulated for each student in both groups from counselors' guidance records.
4. Coefficients of correlation were computed by the product-moment method between the various prognostic factors and achievement in Shorthand I.
5. Coefficients of correlation were similarly computed between the several prognostic factors and achievement in Shorthand II.
6. The results of the correlations with Shorthand I were analyzed to determine the values of the prognostic factors in predicting achievement in Shorthand I.

7. The results of the correlations with Shorthand II were analyzed to determine the values of the prognostic factors in predicting achievement in Shorthand II.

8. A summary and conclusions were formulated, based upon the findings.

The Shorthand Learning Test used to establish achievement in Shorthand I includes materials based upon Chapters I to VII of the Gregg Shorthand Manual. The test is constructed in four sections, designed to test respectively, dictation, brief forms and phrases, shorthand reading, and transcription. A copy of the test and Manual of Instructions may be found in Table C. Validity of the test was reported by the author[1] to have been established upon the following accepted practices:

> (a) by paralleling the test with the textbooks used in learning shorthand; (b) by harmonizing the test with courses of study; (c) by adapting the test to modern methods of learning; (d) by judgment of competent persons; (e) by a careful selection of the test materials; . . . (g) by determining the difficulty of the test materials and by increasing the degree of difficulty . . .; and (h) by making the test highly reliable.

In the partial standardization of the Shorthand Learning Test, Carmichael[2] administered it to 521 students and obtained a reliability coefficient of +.965 using the chance-half method and correcting by the Spearman-Brown prophecy formula.

Face validity of the Shorthand Learning Test for the purpose of this investigation was determined by comparing the test materials to the courses of study at Watertown High School. All Shorthand I students included in the investigation had completed the study of Chapters I through VII of the Gregg

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[1]Carmichael, Vernal H., Preparation and Partial Standardization of a Testing Program in Shorthand, Doctor's Thesis, University of Pittsburgh, 1937.

[2]Ibid, p. 94.

Shorthand Manual a short time before the test was administered. Classroom procedures had included dictation, learning of brief forms and phrases, reading of shorthand from shorthand plates, and transcription as were covered by the four sections of the test.

The Turse-Durost Stenographic Achievement Test used to establish achievement in Shorthand II consists of dictation of five business letters and correction of printed transcript from the shorthand notes. Validity of the test is based upon the assumption that a verbatim transcript of shorthand notes is valid measure of achievement. Correlation between the correction form and a verbatim form of the test of .89 was obtained by the authors on combined Form A and B. The correlation with a verbatim form corrected for attenuation was estimated to be 1.0. Final reliability coefficients based upon 100 cases were reported as .88 for Form A plus Form B corrected for attenuation, and .78 for Form A correlated with Form B.[3] The high correlation obtained by the investigator between the scores on the Turse-Durost test and mid-year marks in Shorthand II would tend to indicate that the test measures those factors which are considered at Watertown High School as necessary for achievement in Shorthand II. A copy of the Turse-Durost test together with the Manual of Directions and Directions for Administering may be found in Appendix D.

The prognostic factors selected for this study have been listed in the previous chapter. The English and foreign language marks of Shorthand I students were the final marks for those courses taken in the tenth year.

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[3]Turse, Paul L., Durost, Walter N., Turse-Durost Stenographic Achievement Test, Manual of Directions, World Book Company, Yonkers-on-Hudson, 1938.

General scholastic standing for Shorthand I students was computed from all final marks received in the tenth year. These data for students in the second-year shorthand group were taken from their eleventh-year records.

The subjective trait ratings were made for the Shorthand I group during their tenth year and for the Shorthand II group during their eleventh year. Each student was rated as poor, fair, good, or excellent by five to seven individual teachers on each of the following traits: personality, appearance, reliability, initiative, courtesy, cooperation, self-control, and work habits. The four classifications on the scale were assigned numerical values, and an average of the five to seven ratings was made for each trait. The resulting numerical averages provided the personal trait data used in the study. A copy of the rating chart that was used, together with instructions for its use, may be found in Appendix E.

Intelligence quotients used in this study were determined for all students in the ninth year by the Pintner General Ability Tests, Verbal Series.

The Cooperative English Tests were administered to the students in the Shorthand I group during the tenth year and to the students in the Shorthand II group during the eleventh year. The data includes scores for Test A, Mechanics of Expression; Test B, Effectiveness of Expression; and Test C, Reading Comprehension, including vocabulary, reading speed, and reading level.

The end-of-year mark in Shorthand I was included in the data for the Shorthand II group.

Coefficients of correlation were computed by the product-moment method, which involves the solution of the following formula:

$$r = \frac{\frac{\Sigma xy}{N} - c_x c_y}{SD_x \; SD_y}$$

The symbol r is the coefficient of correlation, N the number of cases, SD_x the standard deviation (in steps) of the distribution on the X-axis, SD_y the standard deviation (in steps) of the distribution on the Y-axis, c_x the correction on the X-axis, c_y the correction on the Y-axis, and Σxy the sum of the products of the deviations of each measure from the central tendency of the X- and the Y-axes.[4]

A complete analysis of the data used in this study and the results of the computations are presented in the following chapter.

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[4]Greene, Jorgensen, Gerberich, op. cit., p. 557.

CHAPTER V

ANALYSIS AND INTERPRETATION OF DATA

Achievement in Shorthand

Distribution of the scores for the Shorthand Learning Test administered to the 68 students enrolled in first-year shorthand at Watertown High School is shown in Table I. The total possible score was 152 points. Scores of this group ranged from 38 to 126, falling in a manner to approximate a normal distribution. Such a distribution tends to indicate that a good sampling of achievement was obtained. The mean score was 81.10, and the standard deviation was 19.25. This standard deviation indicates that the scores do not tend to group around the mean but are fairly well scattered.

Further indication of the reliability of the Shorthand Learning Test for the situation in which it was used for this investigation was determined by obtaining for each section of the test a reliability coefficient by the Spearman-Brown prophesy formula ($r = 2r_o \div 1 + r_o$).* The resulting coefficients of reliability ranged from +.86 for the brief forms and phrases test to +.95 for the dictation test. The coefficient for the reading test was +.87, and the dictation test +.91. These reliability coefficients are sufficiently high to indicate that the various sections of the test measure consistently and accurately the achievement of the students in those four areas.

*r_o = uncorrected coefficient.

TABLE I

DISTRIBUTION OF SCORES FOR THE
SHORTHAND LEARNING TEST, SEMESTER I
(68 cases)

Score	Frequency
123-127	2
118-122	1
113-117	1
108-112	3
103-107	1
98-102	9
93-97	5
88-92	6
83-87	4
78-82	3
73-77	6
68-72	7
63-67	7
58-62	5
53-57	4
48-52	2
43-47	1
38-42	1
Total	68
Possible Score	152
Mean	81.10
Standard Deviation	19.25

An indication of the commonality with which the various subtests of the Shorthand Learning Test measured shorthand achievement was obtained by making correlations between the scores on the various sections of the test and total test scores. The resulting coefficients of correlation with the total scores ranged from +.70 for the brief forms and phrases test to +.79 for the transcription test. A correlation of +.75 was found to exist between the total scores and both the reading and dictation scores. These results suggest that subtests are measuring a commonality of shorthand achievement to a fairly high degree.

The distribution of scores for the Turse-Durost Stenographic Achievement Test administered to 46 second-year shorthand students at Watertown High School is shown in Table II. From a total possible score of 180 points, the group obtained scores ranging from 42 to 167, arrayed to resemble a normal distribution. The mean score was 101.04. The standard deviation was 18.06, indicating a fair degree of scatter about the mean. Validity and reliability of the Turse-Durost test, together with other standardization data may be found in the test manual in Appendix D. A high correlation of +.81 was found to exist between the test scores and mid-year marks assigned to the 46 students in the Shorthand II group.

TABLE II

DISTRIBUTION OF SCORES FOR THE
TURSE-DUROST STENOGRAPHIC ACHIEVEMENT TEST, FORM A
(46 cases)

Score	Frequency
165-171	1
158-164	1
151-157	1
144-150	1
137-143	1
130-136	3
123-129	6
116-122	4
109-115	5
102-108	2
95-101	3
88-94	3
81-87	1
74-80	1
67-73	3
60-66	3
53-59	3
46-52	2
39-45	2
Total	46
Possible Score	180
Mean	101.04
Standard Deviation	18.06

The distribution of mid-year marks in shorthand for students in both the Shorthand I and Shorthand II groups are shown in Table III. These marks, representing teachers' judgments of the students' achievement at

TABLE III

DISTRIBUTION OF MID-YEAR MARKS
FOR 68 FIRST-YEAR AND 46 SECOND-YEAR SHORTHAND PUPILS

Mark	Shorthand I Group Frequency	Shorthand II Group Frequency
A	2	1
A-	4	6
B+	4	9
B	8	8
B-	8	0
C+	4	8
C	17	6
C-	11	7
D+	0	1
D	10	1
Total	68	46

approximately the time the shorthand achievement tests were given, are a further indication of the range of abilities present in both groups. Correlations between scores on the achievement tests and mid-year marks were as follows:

Turse-Durost Stenographic Achievement Test with mid-year marks in Shorthand II	+.81
Carmichael Shorthand Learning Test with mid-year marks in Shorthand I	+.64

Intelligence

Intelligence quotients used in the study were derived from the Pintner General Ability Tests, Verbal Series, Form A, administered in the ninth year. The distribution of intelligence quotients for both groups as shown in Table IV indicates a normal I.Q. spread for both groups with the

TABLE IV

DISTRIBUTION OF INTELLIGENCE QUOTIENTS
FOR 68 FIRST-YEAR AND 46 SECOND-YEAR SHORTHAND STUDENTS

I.Q.	Shorthand I Group Frequency	Shorthand II Group Frequency
131-133	1	0
128-130	0	0
125-127	3	2
122-124	2	0
119-121	3	3
116-118	2	4
113-115	6	2
110-112	8	3
107-109	5	2
104-106	8	4
101-103	4	3
98-100	14	2
95-97	5	6
92-94	3	4
89-91	2	3
86-88	0	3
83-85	2	3
80-82	0	2
Total	68	46
Mean	105.3	101.9
Standard Deviation	10.2	12.5

mean in each group slightly over 100. Such data suggest that the cases used in this study represent a normal population insofar as intelligence is concerned.

The correlations obtained between intelligence quotients and the shorthand achievement tests were $+.27$ for the Shorthand I group and $+.67$ for the Shorthand II group. By applying Kelly's formula for the <u>Coefficient of Alienation</u> ($k = \sqrt{1-r^2}$) and then deducting the resulting values expressed as percentages from 100, such correlations may be expressed in terms of

approximate percentages of forecasting efficiency.[1] For the values of r in these correlations, the forecasting efficiency of I. Q. for achievement in Shorthand I was determined to be about 4 per cent, and for Shorthand II about 26 per cent.

Scholastic Standing

Data for scholastic standing were expressed in two ways for each group: (1) rank in the class as a whole based upon grade point averages of all final marks for the year, and (2) rank in the business course based upon grade point averages for all final marks for the year. The Shorthand I students were ranked upon marks earned during the tenth year.

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[1]Greene, Jorgensen, Gerberich, op. cit., p. 564.

TABLE V

DISTRIBUTION OF SCHOLASTIC
RANK FOR 63 FIRST YEAR SHORTHAND STUDENTS
(418 in class) (approx. 120 in business course)

Class Rank	Freq.	Course Rank	Freq.
1-20	9	1-7	7
21-40	5	8-14	5
41-60	6	15-21	6
61-80	6	22-28	4
81-100	4	29-35	5
101-120	4	36-42	4
121-140	5	43-49	4
141-160	7	50-56	5
161-180	3	57-63	4
181-200	2	64-70	4
201-220	2	71-77	2
221-240	0	78-84	3
241-260	3	85-91	2
261-280	3	92-98	3
281-300	0	99-105	1
301-320	0	106-112	2
321-340	2	113-119	2
341-360	1		
361-380	0		
381-400	1		
Total	63	Total	63
Mean	122.7	Mean	49.3
S. D.	95.0	S. D.	32.6

The Shorthand II students were ranked upon marks earned during the eleventh year. Table V shows the distributions of the ranks assigned to the first-year shorthand group. The skewed nature of these distributions indicate that more students who ranked high in scholastic average among their classmates were enrolled in Shorthand I than students who ranked low. For example, among the 418 students in the sophomore class, none of the students included in this study were ranked above 400, while nine were included in

the first 20. The mean class rank for the Shorthand I group was 122.7, which was considerably higher than the middle, or mean, rank for the entire class (209.5). This characteristic is also apparent in the distribution of course rank.

Table VI shows a somewhat similar distribution of scholastic rank for the Shorthand II group. The tendency of the majority of the students enrolled in shorthand to rank high among their classmates is more pronounced with Shorthand II than with Shorthand I. The student of lowest scholastic standing in the Shorthand II group ranked 263 in the class of 338, leaving no shorthand students among the lower 75 in scholastic standing. However, the top 75 in the class, included 13 of the 46 Shorthand II students. The mean class rank for the Shorthand II group (114.3) was substantially above the middle rank for the class.

TABLE VI

DISTRIBUTION OF SCHOLASTIC
RANK FOR 46 SECOND-YEAR SHORTHAND STUDENTS
(338 in class) (approx. 80 in business course)

Class Rank	Freq.	Course Rank	Freq.
1-15	3	1-5	4
16-30	1	6-10	3
31-45	4	11-15	4
46-60	3	16-20	1
61-75	2	21-25	1
76-90	7	26-30	6
91-105	2	31-35	3
106-120	8	36-40	6
121-135	3	41-45	3
136-150	2	46-50	2
151-165	2	51-55	4
166-180	2	56-60	2
181-195	0	61-65	1
196-210	1	66-70	4
211-225	1	71-75	2
226-240	2		
241-255	1		
256-270	2		
Total	46	Total	46
Mean	114.3	Mean	36.1
S. D.	64.0	S. D.	20.8

The coefficient of correlation obtained between achievement in Shorthand I and scholastic rank in the class was +.29. Correlation between achievement in Shorthand I and scholastic rank in the business course was +.32. These relationships suggest a forecasting efficiency for predicting achievement in Shorthand I of about 4 per cent and 5 per cent respectively.

The coefficient of correlation obtained between achievement in Shorthand II and scholastic rank in the class was +.78. Correlation between achievement in Shorthand II and scholastic rank in the business

course was +.73. These relationships suggest a forecasting efficiency of scholastic rank for predicting achievement in Shorthand II of 38 per cent and 32 per cent respectively.

Cooperative English Tests

The data included seven sets of scores from the Cooperative English Tests: (1) Total Score, Tests A, B, C; (2) Test A, Mechanics of Expression; (3) Test B, Effectiveness of Expression; (4) Test C, Reading Comprehension (Total); (5) Reading Comprehension (Vocabulary); (6) Reading Comprehension (Speed); (7) Reading Comprehension (Level).

The distribution of total scores for Tests A, B, and C is shown in Table VII for both the first-year and second-year shorthand groups. The distribution in both cases tends to follow a normal curve. The mean score for the second-year shorthand group is one point higher than the mean score for the first-year group.

TABLE VII

DISTRIBUTION OF TOTAL SCORES
FOR COOPERATIVE ENGLISH TESTS A, B, AND C
BASED ON 63 FIRST-YEAR AND 46 SECOND-YEAR SHORTHAND STUDENTS

Score	Shorthand I Group Frequency	Shorthand II Group Frequency
74-76	0	1
71-73	0	2
68-70	0	1
65-67	0	0
62-64	4	0
59-61	1	3
56-58	6	3
53-55	7	5
50-52	10	4
47-49	12	4
44-46	7	11
41-43	7	6
38-40	5	5
35-37	2	0
32-34	2	1
Total	63	46
Mean	48.6	49.6
Standard Deviation	7.2	9.4

Correlations between the total scores for the Cooperative English Tests and the scores for the shorthand achievement tests were +.31 for the Shorthand I group, and +.69 for the Shorthand II group. Interpreted as percentage of forecasting efficiency, these correlations suggest that total scores for the Cooperative English Tests have a forecasting efficiency of 5 per cent for achievement in Shorthand I, and 28 per cent for achievement in Shorthand II.

Scores for Test A, Mechanics of Expression, were distributed somewhat differently for the two groups, as shown in Table VIII. The upper limits of the distribution for the Shorthand II group was 20 points higher than

that for the Shorthand I group. The mean score for the Shorthand II group was 5.3 points higher than the mean score for the Shorthand I group.

Correlations between scores on Test A and shorthand achievement scores were found to be +.53 for the Shorthand I group, and +.73 for the Shorthand II group. These correlations suggest a forecasting efficiency of 15 per cent and 32 per cent respectively.

TABLE VIII

DISTRIBUTION OF SCORES FOR
COOPERATIVE ENGLISH TEST A, MECHANICS OF EXPRESSION,
BASED ON 63 FIRST-YEAR AND 46 SECOND-YEAR SHORTHAND STUDENTS

Score	Shorthand I Group Frequency	Shorthand II Group Frequency
89-91	0	1
86-88	0	0
83-85	0	2
80-82	0	0
77-79	0	0
74-76	0	1
71-73	0	0
68-70	0	1
65-67	2	1
62-64	1	6
59-61	7	2
56-58	5	5
53-55	10	7
50-52	13	5
47-49	6	6
44-46	7	6
41-43	5	0
38-40	3	2
35-37	3	1
32-34	0	0
29-31	1	0
Total	63	46
Mean	50.3	55.6
Standard Deviation	7.7	11.4

The distribution of scores for Test B, Effectiveness of Expression, is shown in Table IX for both the first-year and second-year shorthand groups. Scores of both groups tend to follow a normal distribution pattern. The difference between the mean scores for the two groups is 1.9.

Correlations between Test B scores and shorthand achievement scores were +.30 for the Shorthand I group, and +.61 for the Shorthand II group. The value of these relationships for forecasting efficiency may be interpreted as 5 per cent and 21 per cent respectively.

TABLE IX

DISTRIBUTION OF SCORES FOR
COOPERATIVE ENGLISH TEST B, EFFECTIVENESS OF EXPRESSION,
BASED ON 63 FIRST-YEAR AND 46 SECOND-YEAR SHORTHAND STUDENTS

Score	Shorthand I Group Frequency	Shorthand II Group Frequency
74-76	0	1
71-73	0	0
68-70	1	1
65-67	0	0
62-64	2	1
59-61	2	3
56-58	9	1
53-55	12	6
50-52	5	5
47-49	10	9
44-46	9	5
41-43	6	7
38-40	4	4
35-37	3	2
32-34	0	1
Total	63	46
Mean	49.7	51.6
Standard Deviation	7.2	8.4

The distribution of scores for the first-year shorthand group for Test C, Reading Comprehension, is shown in Table X. This data includes scores for the total test as well as subtests measuring vocabulary and speed and level of reading. Relationships between reading comprehension and achievement in first-year shorthand were found to be negligible. The correlation between the total scores for Test C and the achievement test scores for the first-year shorthand group was $+.054$. Correlations between achievement in Shorthand I and scores on the subtests were found to be $+.065$, $+.087$, and $+.026$ for vocabulary, reading speed, and reading level respectively. These relationships indicate that insofar as this study is concerned, reading comprehension has no value for predicting achievement in Shorthand I.

TABLE X

DISTRIBUTION OF SCORES FOR
COOPERATIVE ENGLISH TEST C, READING
COMPREHENSION, BASED ON 63 FIRST-YEAR SHORTHAND STUDENTS

Score	Frequency			
	Vocab.	Speed	Level	Total
71-73	0	1	0	0
68-70	0	2	0	0
65-67	0	3	0	1
62-64	1	2	0	1
59-61	0	1	2	3
56-58	3	6	6	4
53-55	4	5	4	4
50-52	4	9	4	4
47-49	8	15	11	12
44-46	14	6	7	10
41-43	12	5	13	11
38-40	9	2	9	6
35-37	4	1	2	2
32-34	3	2	2	2
29-31	0	1	2	2
26-28	0	1	0	0
23-25	1	0	0	0
20-22	0	0	1	0
17-19	0	1	0	1
Total	63	63	63	63
Mean	44.3	49.5	45.1	45.9
Std. Dev.	6.6	9.6	6.8	8.4

The distribution of Test C scores for the Shorthand II group as shown in Table XI, not unlike that for the Shorthand I group. In each case, the distributions of total and subtest scores follow a normal distribution pattern with little variation in mean scores between the two groups. The relationship of reading comprehension with Shorthand II was found to be considerably higher than with Shorthand I. The correlation between total scores for Test C and achievement scores for Shorthand II was found to be .48. Correlations of achievement in Shorthand II with the subtests were

TABLE XI

DISTRIBUTION OF SCORES FOR
COOPERATIVE ENGLISH TEST C, READING
COMPREHENSION, BASED ON 46 SECOND-YEAR SHORTHAND STUDENTS

Score	Frequency			
	Vocab.	Speed	Level	Total
77-79	0	2	0	0
74-76	0	0	0	0
71-73	0	0	0	0
68-70	1	0	0	1
65-67	0	4	1	2
62-64	2	2	3	0
59-61	1	2	1	3
56-58	3	2	4	4
53-55	3	5	1	3
50-52	1	5	3	1
47-49	5	5	12	6
44-46	10	7	4	10
41-43	9	9	8	11
38-40	7	0	5	3
35-37	3	1	2	1
32-34	0	1	2	1
29-31	0	0	0	0
26-28	1	1	0	0
Total	46	46	46	46
Mean	45.1	50.7	47.3	48.0
Std. Dev.	8.1	10.5	8.1	8.1

+.56 for vocabulary, +.55 for speed of reading, and +.39 for level of reading. These relationships suggest a forecasting efficiency for achievement in Shorthand II of 12 per cent for the total test, 17 per cent for vocabulary and reading speed, and 8 per cent for reading level.

Teachers' Marks in English

The English marks included in the data were final marks in tenth-year English for the Shorthand I group and final marks in eleventh-year English

for the Shorthand II group. Distribution of English marks for both groups is shown in Table XII. The marks range from A- to C- for the first-year

TABLE XII

DISTRIBUTION OF FINAL ENGLISH MARKS FOR
68 FIRST-YEAR SHORTHAND STUDENTS (SOPHOMORE ENGLISH)
AND 46 SECOND-YEAR SHORTHAND STUDENTS (JUNIOR ENGLISH)

Mark	Shorthand I Group Frequency	Shorthand II Group Frequency
A	0	2
A-	3	0
B+	8	1
B	10	3
B-	21	12
C+	10	14
C	11	9
C-	5	5
D+	0	0
D	0	0
Total	68	46

shorthand group, and from A to C- for the second-year shorthand group. The average mark for both groups was between B- and C+. Tenth-year English marks were found to have a correlation of +.26 with achievement in Shorthand I. The correlation between eleventh-year English marks and achievement in Shorthand II was found to be +.36. These relationships suggest that tenth-year English marks have a forecasting efficiency for achievement in Shorthand I of 4 per cent, and eleventh-year English marks have a forecasting efficiency for achievement in Shorthand II of 7 per cent.

Teachers' Marks in Foreign Languages

The data for foreign language marks included teachers' marks in French, Italian, and Spanish. For the Shorthand I group these marks were assigned at the end of the tenth year, and for the Shorthand II group, at the end of the eleventh year. The marks range from A to D in each group.

TABLE XIII

DISTRIBUTION OF FOREIGN LANGUAGE MARKS
FOR 40 FIRST-YEAR AND 32 SECOND-YEAR SHORTHAND PUPILS

Mark	Shorthand I Group Frequency	Shorthand II Group Frequency
A	1	3
A-	2	6
B+	7	2
B	5	6
B-	7	2
C+	8	4
C	3	5
C-	6	3
D+	0	0
D	1	1
Total	40	32

The average mark for the Shorthand I group is slightly below B-, and the average for the Shorthand II group is slightly above B-. Correlations between foreign language marks and achievement in shorthand were found to be +.31 for the Shorthand I group, and +.74 for the Shorthand II group. As percentages of forecasting efficiency for achievement in shorthand, these correlations may be interpreted as 5 per cent for Shorthand I and 33 per cent for Shorthand II.

Personal Trait Ratings

In most instances students were rated on each of the eight personal traits by six individual teachers with whom they had contact. A few were rated by five, and others by seven teachers. A rating of "excellent" was assigned a value of one point; "good", two points; "fair", three points; and "poor", four points. An average rating of each trait for each pupil was calculated, providing a single rating for each trait. Values for the average of the eight single ratings for each pupil were also included in the data. Table XIV shows the distribution of the average ratings for each trait and the overall average for each pupil in the Shorthand I group. A similar distribution for the Shorthand II group is shown in Table XV. The relationships obtained between the personal trait ratings and achievement in Shorthand I were as follows:

Trait	r	% Forecasting Efficiency
Personality	.30	5
Appearance	.29	4
Reliability	.22	2
Initiative	.26	3
Courtesy	.15	1
Cooperation	.002	0
Self Control	.10	½
Work Habits	.25	3
Average of Eight	.21	2

TABLE XIV

DISTRIBUTION OF AVERAGE PERSONAL TRAIT RATINGS
ASSIGNED BY TEACHERS TO 62 FIRST-YEAR SHORTHAND STUDENTS

Rat-ing**	Frequencies								
	Trait* 1	Trait 2	Trait 3	Trait 4	Trait 5	Trait 6	Trait 7	Trait 8	Av.
1.2	0	2	1	1	3	1	1	0	0
1.3	0	2	0	2	3	3	2	2	1
1.4	0	2	3	2	7	3	4	1	2
1.5	0	4	2	0	3	4	5	4	4
1.6	3	8	3	2	2	3	5	4	4
1.7	4	7	8	5	12	8	9	4	3
1.8	10	10	5	2	9	7	4	5	7
1.9	3	4	1	3	2	5	1	3	7
2.0	14	7	9	7	8	15	13	9	10
2.1	5	3	4	3	4	0	1	2	8
2.2	4	6	5	6	2	3	6	4	4
2.3	10	5	5	9	3	4	2	6	5
2.4	3	2	4	4	1	0	4	3	0
2.5	2	0	5	5	0	2	3	2	4
2.6	3	0	1	2	1	2	0	5	2
2.7	1	0	2	3	1	1	0	4	1
2.8	0	0	3	6	0	0	0	1	0
2.9	0	0	1	0	0	0	1	0	0
3.0	0	0	0	0	1	1	1	3	0
Total	62	62	62	62	62	62	62	62	62
Mean	2.1	1.8	2.1	2.2	1.8	1.9	1.9	2.1	2.0
S. D.	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.3

*Trait 1--Personality; Trait 2--Appearance; Trait 3--Reliability; Trait 4--Initiative; Trait 5--Courtesy; Trait 6--Cooperation; Trait 7--Self Control; Trait 8--Work Habits; Av.--Average of eight traits for each pupil.

**Ratings: 1--Excellent; 2--Good; 3--Fair; 4--Poor

TABLE XV

DISTRIBUTION OF AVERAGE PERSONAL TRAIT RATINGS
ASSIGNED BY TEACHERS TO 46 SECOND-YEAR SHORTHAND STUDENTS

Rat-ing**	Frequencies								
	Trait* 1	Trait 2	Trait 3	Trait 4	Trait 5	Trait 6	Trait 7	Trait 8	Av.
1.0	0	1	1	0	3	0	0	1	0
1.1	0	0	0	0	0	0	0	0	0
1.2	0	3	0	1	2	2	2	0	1
1.3	3	6	3	1	2	3	5	2	2
1.4	0	0	1	0	3	1	2	1	1
1.5	4	3	2	1	3	3	1	2	1
1.6	0	3	1	0	1	0	0	1	1
1.7	3	4	1	4	5	7	4	4	6
1.8	5	4	2	1	5	4	4	1	2
1.9	1	2	2	3	1	0	2	1	1
2.0	8	9	3	4	7	8	7	2	7
2.1	1	2	0	1	3	3	2	0	2
2.2	3	2	5	2	4	4	4	2	7
2.3	6	2	5	4	2	5	5	12	2
2.4	4	3	4	3	2	2	0	2	8
2.5	3	1	4	4	2	3	2	1	3
2.6	4	0	3	3	1	0	2	2	2
2.7	1	1	5	4	0	0	2	6	0
2.8	0	0	2	7	0	1	2	1	0
2.9	0	0	2	0	0	0	0	5	0
3.0	0	0	0	3	0	0	0	0	0
Total	46	46	46	46	46	46	46	46	46
Mean	2.0	1.8	2.2	2.3	1.8	1.9	2.0	2.2	2.0
S. D.	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.5	0.4

*Trait 1--Personality; Trait 2--Appearance; Trait 3--Reliability; Trait 4--Initiative; Trait 5--Courtesy; Trait 6--Cooperation; Trait 7--Self Control; Trait 8--Work Habits; Av.--Average of eight traits for each pupil.

**Ratings: 1--Excellent; 2--Good; 3--Fair; 4--Poor

Relationships between the personal trait ratings and achievement in Shorthand II were higher than those for Shorthand I. Correlation coefficients between achievement in Shorthand II and the personal trait ratings together with percentages of forecasting efficiency suggested by the relationships are as follows:

Trait	r	% Forecasting Efficiency
Personality	.37	7
Appearance	.16	1
Reliability	.52	15
Initiative	.53	15
Courtesy	.42	9
Cooperation	.36	7
Self Control	.46	11
Work Habits	.69	28
Average of Eight	.54	16

Shorthand I Marks for Second-Year Group

Final marks in Shorthand I were included in the data for the second-year shorthand group. These marks indicate the judgments of teachers as to the achievement of the pupils at the end of their first year of shorthand. As indicated by the distribution shown in Table XVI, the spread of Shorthand I marks somewhat resembles a normal curve and is not skewed toward the higher marks as might be expected. Such a distribution increases the value of the data for correlation purposes.

The correlation between achievement in Shorthand II and marks made by the Shorthand II pupils the previous year in Shorthand I was found to be .63. This relationship suggests a forecasting efficiency of marks in Shorthand I for achievement in Shorthand II of 22 per cent.

TABLE XVI

DISTRIBUTION OF FINAL MARKS IN
SHORTHAND I FOR 46 SECOND-YEAR SHORTHAND STUDENTS

Mark	Frequency
A	2
A-	6
B+	3
B	7
B-	2
C+	9
C	8
C-	8
D+	0
D	1
Total	46

Summary of Relationships Between Achievement
in Shorthand and the Several Prognostic Factors

The relationships between achievement in Shorthand I as measured by the Carmichael Shorthand Learning Test, Semester I, and the prognostic factors selected for this investigation are given in Table XVII. A study of this table will reveal that the only factor bearing a definite relationship to shorthand achievement is the Cooperative English Test A, Mechanics of Expression, with a correlation of +.53. This correlation suggests a forecasting efficiency of only 15 per cent.

Other correlations range from +.32 for rank in the business course and +.31 for foreign language marks and total scores for the Cooperative English Tests down to the negligible correlations given for the reading comprehension factors. The correlation between intelligence and achievement in Shorthand I (+.27) is lower than that reported by most investigators for intelligence. English marks and foreign language marks both show low

correlations with achievement in Shorthand I. Negligible to low relationships were obtained with the personal trait ratings.

TABLE XVII

RELATIONSHIPS BETWEEN
SCORES FOR THE CARMICHAEL SHORTHAND
LEARNING TEST, SEMESTER I, AND SELECTED PROGNOSTIC FACTORS

Factor	No. Cases	r	% Forecasting Efficiency
Intelligence Quotient	68	.27	4
Scholastic Rank (Class) . . .	63	.29	4
Scholastic Rank (Course) . .	63	.32	5
Coop. English Tests A,B,C . .	63	.31	5
Test A, Mech. Expr.	63	.53	15
Test B, Eff. Expr.	63	.30	5
Test C, Reading Comp. . . .	63	.054	0
Vocabulary	63	.065	0
Speed	63	.087	0
Level	63	.026	0
English Marks (Sophomore) . .	68	.26	4
Foreign Language Marks. . . .	40	.31	5
Av. of 8 Personal Traits. . .	62	.21	2
Personality	62	.30	5
Appearance	62	.29	4
Reliability	62	.22	2
Initiative	62	.26	3
Courtesy	62	.15	1
Cooperation	62	.002	0
Self Control	62	.10	½
Work Habits	62	.25	3

These relationships indicate that insofar as this study is concerned no one of these factors is particularly effective for predicting achievement in Shorthand I.

Relationships between achievement in Shorthand II as measured by the Turse-Durost Stenographic Achievement Test and the various prognostic factors are shown in Table XVIII. Comparison of Table XVIII with Table XVII will reveal the consistently higher relationships of the prognostic factors

TABLE XVIII

RELATIONSHIPS BETWEEN
SCORES FOR THE TURSE-DUROST STENOGRAPHIC
ACHIEVEMENT TEST AND SELECTED PROGNOSTIC FACTORS

Factor	No. Cases	r	% Forecasting Efficiency
Intelligence Quotient	46	.67	26
Scholastic Rank (Class)	46	.78	38
Scholastic Rank (Course). . . .	46	.73	32
Coop. English Tests A,B,C . . .	46	.69	28
Test A, Mech. Expr.	46	.73	32
Test B, Eff. Expr.	46	.61	21
Test C, Reading Comp.	46	.48	12
Vocabulary	46	.56	17
Speed	46	.55	17
Level	46	.39	8
English Marks (Junior).	46	.36	7
Foreign Language Marks.	32	.74	33
Av. of 8 Personal Traits. . . .	46	.54	16
Personality	46	.37	7
Appearance	46	.16	1
Reliability	46	.52	15
Initiative	46	.53	15
Courtesy	46	.42	9
Cooperation	46	.36	7
Self Control	46	.46	11
Work Habits	46	.69	28
Shorthand I Marks	46	.63	22

with achievement in Shorthand II than with Shorthand I. Substantial relationships were obtained between achievement in Shorthand II and scholastic standing: (1) a correlation of +.78 was obtained with rank in the class as a whole, and (2) a correlation of +.73 with rank in the business course. Other marked substantial relationships were with foreign language marks (+.74), Cooperative English Test A (+.73), total scores for Cooperative English Tests A, B, and C (+.69), work habits rating (+.69), and intelligence (+.67). Correlations with Cooperative English Test B (+.61)

and Shorthand I marks (+.63) are also sufficiently high to indicate marked relationships.

The percentages of forecasting efficiency suggested by these relationships indicate that no one of these factors may be used with any considerable degree of success as a sole determinant for predicting future achievement in Shorthand II. These findings also indicate that a selected group of these factors when used in conjunction with one another would provide predictive value for achievement in Shorthand II. Such factors would include intelligence, scholastic rank, Cooperative English Tests A and B, foreign language marks (if any), Shorthand I marks, and work habits rating.

Interpretation of Results

Results of the investigation must be interpreted in view of the background and data used. Correlations of the shorthand achievement with teachers' marks are only as reliable as are the marks and would vary in a different marking situation. The trait ratings are subjective, and the correlations obtained from use of these data would vary under different rating situations.

The relationship between Shorthand I and Shorthand II depends largely upon the courses of study being considered. At Watertown High School, Shorthand I is for the most part a pure skill subject without a great deal of pre-transcription work or language background training. In some schools teachers of Shorthand I begin early in the course to teach the proper application of the shorthand being learned. Other schools feel that learning one skill at a time is most effective, and most language factors in application of shorthand skill are left to the second year of shorthand.

Content and teaching methods of foreign languages and Sophomore and Junior English also affect the results of correlations involving those factors. Scholastic averages, based upon marks received by the students in all subjects, would vary with the marking situation.

The intelligence quotients used in this study were derived from the Pintner verbal form of test. In circumstances where other tests of mental ability are used, results may vary considerably.

The nature of the population of the community in which the investigation was carried out is significant in the interpretation of the results. In a community where a large percentage of the population are foreign born and many students are from bilingual homes, results from language factors used in the study would be affected.

Another factor that must be kept in mind when interpreting the results of this investigation is that the study was limited to the investigation of predictive factors for achievement in shorthand as a school subject. Prediction of success in the occupation of stenography involves numerous abilities in addition to competence in shorthand, which are not within the scope of this study.

Final conclusions that have been drawn from the relationships found between the several prognostic factors and achievement in both Shorthand I and Shorthand II are presented in the final chapter embracing the summary and conclusions for the investigation.

CHAPTER VI

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

This investigation was concerned with a study of the relationships between selected prognostic factors and achievement in shorthand. The study included 68 students enrolled in first-year shorthand and 46 students enrolled in second-year shorthand at Watertown High School, Watertown, Massachusetts.

The prognostic factors included intelligence; scholastic average; scores on the Cooperative English Tests A, B, and C; English marks; foreign language marks; subjective trait ratings of personality, appearance, reliability, initiative, courtesy, cooperation, self-control, and work habits; and Shorthand I marks for second-year shorthand students.

Scores for the Carmichael Shorthand Learning Test, Semester I, were used as the criterion of achievement in Shorthand I. Scores for the Turse-Durost Stenographic Achievement Test, Form A, were used as the criterion of achievement in Shorthand II.

<u>Relationships between achievement in Shorthand I and the prognostic factors</u>: The correlations of the selected prognostic factors with achievement in Shorthand I were, with one exception, low or negligible. A definite but relatively low correlation of $+.53$ was found between the criterion and scores for the Cooperative English Test A, Mechanics of Expression.

Low correlations were found between achievement in Shorthand I and intelligence ($+.27$); scholastic rank in the class ($+.29$); scholastic rank

in the business course (+.32); total scores for Cooperative English Tests A, B, and C (+.31); scores for Cooperative English Test B, Effectiveness of Expression (+.30); English marks (+.26); foreign language marks (+.31); average of eight personal traits (+.21); personality rating (+.30); appearance rating (+.29); Reliability rating (+.22); initiative rating (+.26); and work habits rating (+.25).

Negligible correlations were found between achievement in Shorthand I and scores for the Cooperative English Test C, Reading Comprehension; scores for the reading comprehension subtests of vocabulary, reading speed, and reading level; courtesy rating; cooperation rating; and self-control rating.

Relationships between achievement in Shorthand II and the prognostic factors: Correlations of the prognostic factors with achievement in Shorthand II were considerably higher than with achievement in Shorthand I. Marked to substantial correlations were obtained between achievement in Shorthand II and intelligence (+.67); scholastic rank in the class (+.78); scholastic rank in the business course (+.73); total scores for the Cooperative English Tests A, B, and C (+.69); scores for the Cooperative English Test A, Mechanics of Expression (+.73); scores for the Cooperative English Test B, Effectiveness of Expression (+.61); foreign language marks (+.74); work habits rating (+.69); and Shorthand I marks (+.63).

Relatively low but definite correlations were found between the Shorthand II criterion and the Cooperative English Test C, Reading Comprehension (+.48); reading comprehension subtests of vocabulary (+.56); and reading speed (+.55); average of eight personal traits (+.54); reliability rating (+.52); initiative rating (+.53); courtesy rating (+.42); and self-control rating (+.46).

Low correlations were obtained between achievement in Shorthand II and English marks (+.36); scores for the reading comprehension subtest of reading level (+.39); personality rating (+.37); and cooperation rating (+.36). The negligible correlations of +.16 was found between achievement in Shorthand II and appearance rating.

Conclusions

The final conclusions that were formulated from the findings of the study are as follows:

1. The low correlations of the prognostic factors with achievement in Shorthand I indicate that no one of the factors selected for this study when used alone is effective for predicting achievement in Shorthand I.

2. The marked to substantial correlations of achievement in Shorthand II with intelligence, scholastic rank, Cooperative English Test scores, foreign language marks, work habits ratings, and Shorthand I marks indicate that, although no one of these factors may be used alone with complete success for predicting achievement in Shorthand II, a selected pattern of these factors should be of considerable value in predicting achievement in Shorthand II.

3. The considerably higher correlations of the various prognostic factors with achievement in Shorthand II than with Shorthand I indicate that achievement in Shorthand I is not dependent upon the same abilities as achievement in Shorthand II. The correlation on +.63 obtained between Shorthand I marks and achievement in Shorthand II by the same students is not high enough to indicate that all students who are successful in Shorthand I will be successful in Shorthand II. Neither

does this relationship indicate that all students who are unsuccessful in Shorthand I will be unsuccessful in Shorthand II. This condition indicates that if achievement in first-year shorthand is to be satisfactorily predicted, prognostic devices must be used which are different from those used for predicting achievement in second-year shorthand.

Recommendations

The findings of this investigation are not conclusive in themselves. From the conclusions, suggestions arise for further study that is beyond the scope of this investigation. Such suggestions include the following:

1. Multiple correlations between achievement in Shorthand I and various combinations of the prognostic factors used in this study would indicate whether or not a higher predictive value may be present for a certain combination of the factors than has been found for a single factor.

2. Multiple correlations between achievement in Shorthand II and various combinations of the prognostic factors used in this study would indicate which of these factors may be used in combination to form a pattern that would be most effective for predicting achievement in Shorthand II.

3. Intercorrelations between the various prognostic factors used in this study would indicate whether or not similar abilities are represented by the measures of two or more of the factors. Where two or more factors are found to represent similar abilities, only one of them may need to be included in the battery of factors used to predict future achievement in shorthand.

4. An investigation similar to the present study made in other schools offering shorthand would be of value for evaluating the plan of prognosis for each school in view of the particular circumstances for the school.

5. Inasmuch as mental abilities and motor abilities have in the past shown little relationship to achievement in first-year shorthand, further investigations may well be made of students' attitudes toward the subject as they influence achievement.

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APPENDIX A

Community Statistical Abstract for Watertown, Massachusetts

WATERTOWN

Middlesex County, Massachusetts

COMMUNITY STATISTICAL ABSTRACT

BUREAU OF BUSINESS RESEARCH

BOSTON UNIVERSITY COLLEGE OF BUSINESS ADMINISTRATION

Boston, Massachusetts

Population 35,427
Area (sq. miles) 4.1
Density per sq. mile 8,640.7
County Population 971,390

DISTANCES
Boston 6 miles
New York 215 miles
Worcester 36 miles
Lowell 22 miles

Prepared for the INDUSTRIAL DEVELOPMENT COMMITTEE OF THE NEW ENGLAND COUNCIL

ALTITUDE 20 ft.

MARKET DATA FOR NEARBY COMMUNITIES

Community	Population (1940)	Retail Sales (1939)	% to State
Boston	770,816	$487,744,000	28.11
Cambridge	110,879	46,620,000	2.69
Newton	69,873	22,537,000	1.30
Waltham	40,020	20,712,000	1.19
Belmont	26,867	5,382,000	.31

Part of the Greater Boston Metropolitan area, and trade center for nearby communities.

MARKET DATA FOR NEARBY COUNTIES

County	Population (1940)	Retail Sales (1939)	Value Mfd. Products (1939)
MIDDLESEX	971,390	$301,377,000	$506,906,838
Bristol	364,637	119,420,000	225,950,978
Essex	496,313	178,338,000	341,639,845
Norfolk	325,180	114,111,000	141,230,322
Plymouth	168,824	68,527,000	74,273,222
Suffolk	863,248	512,391,000	435,705,457
Worcester	504,470	185,995,000	376,837,735
Hillsborough, N.H.	144,888	56,385,000	103,897,512
Rockingham, N.H.	58,142	22,250,000	16,586,435
Providence, R.I.	550,298	221,171,000	437,966,480

UTILITIES

Electricity
Supplied by Boston Edison Company. Also serves Boston and surrounding cities.

Gas
Supplied by Boston Consolidated Gas Company. Also serves Boston and surrounding cities.

Water
Source: Metropolitan Boston Water System.

Daily delivery capacity in 1940, 2,354,200 gals.

POPULATION TRENDS

	Number
1940	35,427
1930	34,913
1920	21,451

	% to State
1940	.82
1930	.82
1920	.56

SELECTIVE SERVICE (Dec., 1940)

Watertown Local Boards #154, #155.
Registrants - 3,833.

POPULATION CHARACTERISTICS (1940)

	Number	% of Total Local	% of Total State	% to State
Total	35,427	100.00	100.00	.82
Male	16,893	47.68	48.71	.80
Female	18,534	52.32	51.29	.84
Nat. Wh.	27,127	76.57	78.97	.80
For. Born	8,284	23.38	19.66	.98
Negro	9	.03	1.28	.02
Other	7	.02	.09	.19
Over 21	23,466	66.24	67.56	.80
Over 65	2,564	7.24	8.55	.69
15-19	3,040	8.58	8.92	.79
20-24	2,669	7.53	8.57	.72
25-29	2,682	7.57	8.03	.77

FOREIGN BORN POPULATION (1940)

Country	Number	% of Total Local	% of Total State	% to State
TOTAL	8,284	100.00	100.00	.98
Canada-Other	2,037	24.59	16.78	1.43
Italy	1,725	20.82	13.47	1.51
Irish Free St.	1,001	12.08	12.18	.97
Turkey in Asia	869	10.49	.75	13.59
Other Asia	629	7.60	1.46	5.09
England	317	3.83	6.88	.54
Other	1,706	20.59	48.48	
TOTAL	8,284	100.00	100.00	.98
Naturalized	5,249	63.36	58.44	1.06
First Papers	591	7.13	7.14	.97
Alien	1,550	18.71	24.36	.75
Other	894	10.79	10.06	1.05

(1940) VITAL STATISTICS

	Regardless of Residence	Residents, Regardless of Place of Occurrence
Births	29	516
Deaths	194	328
Births per 100 deaths	15	157
Birth rate (per 1000)	.82	14.57
Death rate (per 1000)	5.48	9.26
Infant Mortality Rate		19.38

(1940) UNEMPLOYMENT

	Male	Female
Seeking Work	1,017	390
On Public Emergency Work (1940)	493	119

MANUFACTURING ACTIVITIES

Year	No. of Estab.	Wages	Wage Earners	Average Wage Local	Average Wage State	Value of Products Amount	% to State
1939	64	$6,419,181	5,147	$1,247	$1,087	$25,762,409	1.05
1937	52	6,652,906	5,411	1,230	1,121	27,767,566	1.06
1935	49	5,210,534	4,829	1,079	1,007	22,775,637	1.09
1933	46	4,478,267	4,589	975	889	16,843,952	1.01
1929	40	9,363,999	7,155	1,308	1,246	33,771,465	1.00
1919	25	9,028,702	9,439	956	1,072	47,297,519	1.18
Mass. State Census 1941		(Data Not Available)					
Mass. State Census 1940	67	$6,324,555	4,989	$1,267	$1,190	$28,653,485	1.04

PRINCIPAL TYPES OF MANUFACTURING

Automotive switches; Box toes; Canned foods; Clothing; Dies; Fibre and plastic products; Linen thread; Mattresses; Pressed metal; Rubberized fabrics; Rubber products and footwear; Signs; Soda fountains; Telephone apparatus; Trucks, portable elevators; Woolen stocks.

(1940) DISTRIBUTION OF TOTAL EMPLOYMENT

Occupation	Number Employed Male	Female	Total	% of Total Local	% of Total State	% to State
TOTAL	8,785	3,994	12,779	100.00	100.00	.83
Professional	638	503	1,141	8.93	7.77	.96
Semiprofessional	160	29	189	1.48	1.25	.99
Farmers & Farm Managers	13	2	15	.12	1.01	.10
Props., Managers, etc.	1,139	100	1,239	9.70	8.32	.97
Clerical, Sales, etc.	1,938	1,619	3,557	27.83	21.19	1.09
Craftsmen, etc.	1,889	77	1,966	15.38	13.65	.94
Operatives, etc.	1,808	984	2,792	21.85	26.91	.68
Domestic & Other Service	601	612	1,213	9.49	12.56	.63
Farm Laborers	37	4	41	.32	1.10	.24
Laborers except Farm	477	19	496	3.88	5.28	.61
Other	85	45	130	1.02	.96	.88

RETAIL DISTRIBUTION—ANALYSIS OF SALES (1939)

Type of Business	Stores	Sales	Per Capita Sales Local	Per Capita Sales State	Stores per 10,000 Pop. Local	Stores per 10,000 Pop. State	% Sales to State
TOTAL, 1939	354	$12,370,000	$349.17	$401.93	99.9	137.2	.71
1935	302	9,355,000	261.12	335.83	84.3	127.6	.64
1933	341	8,762,000	250.97	281.24	97.7	123.4	.73
1929	295	10,409,000	298.14	483.57	84.5	127.5	.51
Food Group	117	5,064,000	142.95	112.35	33.0	50.8	1.04
General Mdse.	11	302,000	8.52	53.10	3.1	4.0	.13
Apparel	17	186,000	5.25	35.39	4.8	11.3	.12
Furn.-Radio	6	88,000	2.48	15.20	1.7	4.6	.13
Automotive	14	1,660,000	46.86	41.64	4.0	3.8	.92
Filling Sta.	45	742,000	20.94	19.58	12.7	13.3	.88
Lumber-Bldg.	12	1,492,000	42.11	12.75	3.4	2.3	2.71
Hardware	4	136,000	3.84	5.24	1.1	2.0	.60
Eating	52	684,000	19.31	25.93	14.6	12.2	.61
Drinking	6	124,000	3.50	9.92	1.7	6.3	.29
Drugs	17	321,000	9.06	14.68	4.8	5.0	.51
Package Goods	7	316,000	8.92	6.77	2.0	2.2	1.08
Other Stores	46	1,255,000	35.42	49.40	13.0	19.4	.59

(1939) WHOLESALE DISTRIBUTION—ANALYSIS OF SALES

Type of Business	No. of Estab.	Proprietors	Employees	Total Pay roll	Sales	% to State
TOTAL, 1939	18	10	384	$706,000	$12,047,000	.54
1935	15	8	243	356,000	9,578,000	.53
1933	18		252	365,000	6,780,000	.51
1929	11		274	592,495	12,036,691	.41

(Data Not Available)

PAY ROLLS—SELECTED

	No. of Employees	Pay roll
Manufacturing	5,147	$6,419,000
Retail	1,339	1,564,000
Wholesale	384	706,000
Service	906	987,000
Municipal	(Data Not Available)	

POSTAL RECEIPTS IN LOCAL DISTRICT

Year	Receipts	% to State	Per Capita Local	Per Capita State
1940				
1939	Included in Boston Postal District.			
1935				

(1939) SERVICE ESTABLISHMENTS

Type of Business	No. of Estab.	Proprietors	Employees	Total Pay roll	Receipts	% to State
TOTAL	188	192	906	$987,000	$2,240,000	1.62
Barber Shops	29	29	21	15,000	70,000	.71
Beauty Parlors	18	20	18	12,000	41,000	.41
Cleaning-Dyeing	10	7	546	613,000	1,164,000	8.17
Funeral Service	7	7	9	11,000	85,000	.77
Laundries	--	--	--	--	--	--
Shoe Repair Shops	20	20	6	6,000	46,000	.89
Other Personal Services	40	38	263	288,000	593,000	
Business Services	8	9	4	2,000	13,000	.06
Auto Repair Service	21	24	12	13,000	81,000	.39
Other Repair Services	22	24	18	18,000	93,000	1.00
Custom Industries	11	14	9	9,000	54,000	.67
Miscellaneous	2					
HOTELS	(Data Not Available)					

RAILROADS

Boston and Maine

* Applies to C.L. shipments. Similar service on L.C.L. by trucking to Boston terminal.

FREIGHT SHIPPING ZONES

1st Morning 2nd Morning 3rd Morning
* (Examples of Typical Destinations)

Portland	New York	Syracuse
Worcester	Providence	Cleveland
Springfield	Albany	Detroit
Boston	Bangor	Buffalo

HIGHWAYS

Located on U. S. Highway #20 and state numbered highways. Paved roads to all neighboring cities.

OTHER TRANSPORTATION FACILITIES

On Charles River-- 9 ft. channel to Boston Inner Harbor. Within short haul of Boston harbor, airport, railroad, and bus terminals connecting with through service to all points east, west, and south, including Canada and Provinces. Established truck lines locally and to all N.E. and long-distance points. Within commuting distance of Boston. Street car and bus passenger service to nearby points. Long-distance bus lines. Through rail, pullman, and bus connections at Boston, Newtonville, or Waltham.

In the interest of comparability, data are given for normal census years and are therefore unaffected by the war emergency. This also avoids giving data which might reflect war activities.

WATERTOWN
Middlesex County, Massachusetts

COMMUNITY STATISTICAL ABSTRACT

BUREAU OF BUSINESS RESEARCH
BOSTON UNIVERSITY COLLEGE OF BUSINESS ADMINISTRATION
Boston, Massachusetts

SOURCES
U. S. Bureau of Census and other Federal Reports
State Reports
Municipal Reports
Other Public and Private Sources
(Acknowledgment is made of all sources in front part of bound volume.)

LOCATION
Eastern Massachusetts. 6 miles west of Boston. On Charles River opposite Newton and Boston (Brighton). In Boston Metropolitan area.

Prepared for the INDUSTRIAL DEVELOPMENT COMMITTEE OF THE NEW ENGLAND COUNCIL

MUNICIPAL FINANCES (Data compiled chiefly from State Reports.)

Year	Assessed Valuation	Valuation Per Capita	Tax Rate per $1000	Total Tax Levy	Levy Per Capita	Municipal Expenditures	Expenditures Per Capita	Total Funded or Fixed Debt	Net Funded or Fixed Debt	Net Bonded Debt Per Capita	Year
1940	$51,345,115	$1,449.32	$35.00	$1,797,079	$50.73			$1,120,000	$1,120,000	$31.61	1940
1939	51,026,270	1,424.24	35.00	1,785,919	49.85	$2,720,570	$75.94	1,201,500	1,201,500	33.54	1939
1938	51,525,370	1,438.17	34.00	1,751,862	48.90	2,680,850	74.83	1,102,000	1,102,000	30.76	1938
1937	51,192,725	1,428.89	35.00	1,791,745	50.01	2,418,964	67.52	1,153,000	1,153,000	32.18	1937
1936	52,756,275	1,472.53	33.40	1,762,060	49.18	2,526,636	70.52	1,291,000	1,291,000	36.03	1936
1935	53,046,330	1,480.62	33.40	1,771,748	49.45	2,433,682	67.93	1,477,700	1,477,700	41.25	1935
1930	53,521,720	1,533.00	31.60	1,691,286	48.44	2,585,532	74.06	1,982,000	1,982,000	56.77	1930

Year	Self-Supporting Utilities Income	Expenditures	Debt (Included in Total Debt)	Debt Service	Temporary Debt Borrowed	Paid	Total Tax Income	Outlays not for Maintenance	Total Income, Except Taxes, Utilities and Borrowings	% Taxes Collected in Given Year	Year
1940	$214,892	$49,812	$3,000	$261,525	$ 800,000	$ 800,000	$2,070,035	$254,641		85.4	1940
1939	196,526	72,932	4,000	347,917	900,000	900,000	1,834,922	276,283	$522,809	81.40	1939
1935	184,364	84,163	8,000	409,927	1,058,000	1,208,000	1,920,654	306,270	335,913	77.36	1935
1930	183,429	59,647	102,000	484,014	1,300,000	1,200,000	1,926,260	561,652	236,456	75.81	1930

Year	Uncollected Taxes as of 1940 For Year Given	Ratio of Total Debt to Legal Limit	Year	Tax Free Property	Business & Manufacturing Property	Year	Tax Title Loans
1940	$261,655		1940	$6,963,750		1940	None
1939	1,291					1939	None
1938	None					1935	None

EXPLANATORY: (1) "Assessed Valuation," "Total Levy," etc., include realty and tangible personal property only. (2) "Expenditures" do not include temporary loans, transfers, refunds, or taxes collected for State or County. (3) Motor Excise included only under "Income except Taxes, etc." (4) "Utilities Expenditures" are for maintenance and operation only, debt service not included.

HOUSING DATA (1940) *Additional Data below.

		No. of Units Reporting	Number	% of Total Local	% of Total State	% to State
Median Value of Owned Homes	(Data Not Available)					
Average Monthly Rent of Dwelling Units	$41.45					
Total Dwelling Units			8,913	100.00	100.00	.73
Occupied by Owner			3,228	36.22	34.95	.76
Occupied by Tenant			5,465	61.31	56.82	.79
Vacant			220	2.47	8.23	.22
				% of No. Reporting		
Dwellings Averaging 1.51 or more persons per room		8,536	148	1.73	2.69	.50
Dwellings with Bath		8,366	7,981	95.40	82.72	.85
Mortgage Status of Owner-occupied Dwellings		3,087				
Number Mortgaged			2,379	77.07	62.95	1.00
Total Dwelling Units						
One Family Dwellings						
Two Family Dwellings			(Data Not Available)			
Three or more Family Dwellings						
1 to 4 Family with Business						

BUILDING TRENDS

Year	New Residential Buildings No.	Est. Cost	New Commercial Buildings No.	Est. Cost	Total Construction No.	Est. Cost	Cost Per Capita
1941	53	$277,500	36	$208,925	216	$687,570	$19.41
1940	46	231,500	47	58,635	216	367,295	10.37
1939	27	171,600	33	282,200	212	550,405	15.36
1938	44	232,800	28	33,295	213	365,418	10.20
1937	23	117,000	35	92,875	154	288,136	8.04
1936	17	78,900	30	253,045	165	477,915	13.34
1935	15	78,300	31	81,825	161	215,245	6.02

GENERAL

	Non-Commercial	Commercial	Total	% to State
Telephones in Local Exchanges (1941)	5,098	1,920	7,018	.76
Number of Electric Meters (1941)			10,455	
Number of Gas Meters (1941)			9,406	
Auto Registration (1940)			9,946	.87
Combined Circulation of Daily Newspapers (1941)				

INCOME TAX RETURNS U. S.

Year	Number of Returns	Per 1,000 Population Local	State	% to Total No. in State
1940	6,387	180.3	154.8	.96
1939	3,788	106.9	87.2	1.01
1937	3,313	92.5	71.0	1.05
1936	2,980	83.2	65.1	1.03
1934	2,772	79.4	57.5	1.11
1933	2,792	80.0	56.6	1.15
1932	2,987	85.6	60.2	1.16
1931	2,045	58.6	47.9	1.00
1930	2,260	64.7	50.4	1.05

*Additional Housing Data (1940)		Number	% of No. Reporting
Dwelling Units Reporting Radios	(County)	230,313	97.29
Dwelling Units with Mechanical Refrigeration		(Data Not Available)	
Dwelling Units with Running Water			

(1940) SCHOOL ATTENDANCE

School Attendance	Number	% to State	No. Attending School	% Attending Local	% Attending State
Persons 5 to 24 years old	11,672	.83	7,967	68.26	60.87
Persons 7 to 13 years old	4,219	.90	4,146	98.27	97.50
Persons 14 to 17 years old	2,528	.84	2,338	92.48	85.32
Persons 18 to 24 years old	3,842	.73	769	20.02	14.91
Years of School Completed				% of Total	
Persons 25 years old and over	21,299	.81		100.00	100.00
No School Years Completed	835	.78		3.92	4.09
Grade School: 1 to 6 years	2,064	.55		9.69	14.43
7 or 8 years	5,231	.65		24.56	30.62
High School: 1 to 3 years	3,874	.80		18.19	18.51
4 years	6,060	1.16		28.45	19.98
College: 1 to 3 years	1,417	1.09		6.65	4.95
4 years or more	1,496	1.05		7.02	5.44
Not Reported	322	.62		1.51	1.97

EDUCATIONAL FACILITIES

Public School System

Number	11
Teaching Personnel	249
Total Enrollment	6,474

Colleges and Private Schools

Rosary Academy
Perkins Institution and School for the blind.

Parochial Schools

Number	2
Total Enrollment	1,126

LIBRARY FACILITIES

Library	No. of Volumes
Free Public Library	89,688
Perkins Institution for the Blind Library	46,763

HOSPITAL FACILITIES

Hospital	Number of Beds

RECREATION FACILITIES

	Number
City Parks	3
Acreage	12.5
Bathing: Beaches, Pools	1
Golf Courses	1
Children's Playg'ds.	8
Theatres	

Recreational facilities of Charles River and Metropolitan Boston System of parks, reservations, and beaches (12,800 acres) within easy access.

HISTORICAL

Town government (representative town meeting). Founded 1630 by Sir Richard Saltonstall. Rich in historical sites. Ancient mounds indicate Vikings visited here. Massachusetts General Court met here 1775-78 as did Boston Town Meeting during siege. Headquarters Committee of Safety. First gristmill in the colony established here 1632, and 1662 one of the first woolen mills. **Home of Perkins Institution.**

BANKING FACILITIES (a)

	Total Resources	Deposits	Loans and Discounts
Union Market National Bank	$10,998,000	$9,614,000	$4,581,000
Watertown Savings Bank	6,133,000*	5,679,000*	2,870,000*
** Watertown Co-operative Bank	9,321,466	9,078,241	6,399,287

* April, 1941 Statement.
** Figures are "Total Resources," "Capital," and "Real Estate Loans" as of the close of October, 1940 business.

(a) Rand McNally Bankers Directory, final ed., 1941. Figures as of June, 1941. Co-operative Bank data from Massachusetts Commissioner of Banks.

HOME OFFICE OF FOLLOWING INSURANCE COMPANIES

Arrow Mutual Liability Company

APPENDIX B

Program of Studies for 1948-1949,

Watertown High School

PROGRAM OF STUDIES

1948-1949

WATERTOWN HIGH SCHOOL

COLLEGE CURRICULUM

Liberal Arts and Technical

GRADE X

Required	Periods	Credits
English (2)	5	5
Three majors from:	15	15
*Geometry, Algebra (2), or (1)		
Latin (2)		
French, Spanish, Italian (1)		
Biology, Modern History		
Physical Education	2	1
	22	21

Electives	Periods	Credits
Non-academic electives	2-4	1-2
A fifth major	5	5

*Must have B- or higher average in Algebra 1 to elect Geometry in Grade X.

*A minimum of two units of Mathematics required, including Algebra I and Geometry.

GRADE XI

Required	Periods	Credits
English (3)	5	5
Three majors from:	15	15
*Geometry, Algebra (2)		
Latin (3)		
French, Spanish, Italian (2)		
U.S. History		
**Chemistry, Biology		
Physical Education	2	1
	22	21

Electives	Periods	Credits
A fifth major	5	5
Non-academic electives	2-5	1-3

*See mathematics requirement above.

**At least one science required in one of the three high school years.

United States History must be taken in Grade XI or XII

GRADE XII

Required	Periods	Credits
English (4)	5	5
Three majors from:	15	15
U.S. History		
Chemistry		
*(Trigonometry - $\frac{1}{2}$ year)		
*(Solid Geometry - $\frac{1}{2}$ year)		
*Physics		
Latin (4)		
French (3), Spanish (3)		
Problems of Democracy		
Health	1	1
	21	21

Electives	Periods	Credits
A fifth major	5	5
Typewriting	3	2
Home Management - Girls	2	2
Physical Education	2	1
**Review College Math	4	4
Non-academic electives	2-5	1-3

*Required for Technical Schools.

U.S. History must be taken in **Grade XI or XII.

**Should be a 5th major unless 16 units are accounted for without it.

NON-ACADEMIC ELECTIVES

Art - Beginners 1, Advanced 2	4-2	2-1
Mechanical Drawing, Beginners 1, Advanced 2	4-2	2-1
Clothing, Beginners 1, Advanced 2	2-4	2-1
Driver Education	1	1
Foods 1, 2, 3	2	1
Chorus	2-1	1-$\frac{1}{2}$
Music Appreciation	1	1
Orchestra	2-1	1-$\frac{1}{2}$
Band	2	1

Electricity, Machine, Printing, Woodworking and Related Work	Grade XI 5($\frac{1}{2}$ yr.)	$1\frac{1}{2}$
	Grade XII 5(1 yr.)	3

(one or two of above may be elected for Grades XI or XII)

GENERAL CURRICULUM

This curriculum is intended for those who wish a broad, cultural education. It is also designed to prepare for entrance to certain higher institutions of learning, particularly of the vocational type. It also allows a girl to major in home economics. Care in the selection of electives is imperative if the student is to achieve his goal in selecting this curriculum.

GRADE X

Required	Periods	Credits	**Electives	Periods	Credits
English (2)	5	5	French, Italian, Spanish (1)	4	4
Physical Education	2	1	Biology	4	4
	7	6	Elementary Physics	5	5
			Algebra (1) or (2)	5	5
			General Mathematics (2)	5	5
			Economic Geography	4	4
			Modern History	4	4

GRADE XI

Required			**Electives		
English (3)	5	5	French, Italian, Spanish (2)	5	5
U. S. History	5	5	General Chemistry	5	5
Physical Education	2	1	Algebra (2), Geometry	5	5
	12	11	Bookkeeping (1)	4	4
			Typewriting (1)	5	3
			Invalid Cookery	2	2

GRADE XII

Required			**Electives		
English (4)	5	5	French, Italian, Spanish (3)	4	4
Problems of Democracy	4	4	(Beg. Psychology - ½ yr.)	4	2
Health	1	1	(Occupational Inf. - ½ yr.)		2
	10	10	Bookkeeping (2)	4	4
			(Office Machines - ½ yr.)		2
			(Math. of Business - ½ yr.)	4	2
			Typewriting (2)	5	3
			(Economics - ½ yr.)		2
			(Commercial Law - ½ yr.)	4	2
			Home Management - Girls	2	2
			Physical Education	2	1

**ELECTIVES

A student must elect three major subjects for Grade X, and two or three majors for Grades XI and XII from the groups given above. He may also choose one or more minors to make up a normal load of about twenty-five (25) periods of work. Ordinarily he may not choose more than one subject from any one field of study.

A student electing for Grade X may not choose Electricity, Machine, Printing, or Woodworking.

NON-ACADEMIC ELECTIVES

Art, Beginners 1, Advanced 2	4-2	2-1	Chorus	2-1	1-½
Mechanical Drawing, Beginners 1, Advanced 2	4-2	2-1	Music Appreciation	1	1
Clothing, Beginners 1, Advanced 2	4-2	2-1	Orchestra	2-1	1-½
Driver Education	1	1	Band	2	1
Foods 1, 2, 3	2	1			

Electricity, Machine, Printing, Woodworking and Related Work

Grade XI	5 (½ yr.)	1½
Grade XII	5 (1 yr.)	3

(One or two of above may be elected for Grades XI or XII)

INDUSTRIAL ARTS CURRICULUM

This curriculum is intended for boys who wish to prepare themselves for industry, apprenticeship, or trade work. In Grade X the work is exploratory in five different types of training, namely: electricity, machine, mechanical drawing, printing, and woodworking. In Grade XI the work becomes more specialized, yet still exploratory, permitting choices in any two of the five fields. In Grade XII each student picks one major for specialization.

GRADE X

Required	Periods	Credits
English (2)	5	5
Elementary Physics	5	5
Applied Mathematics (1)	4	4
(Elec. & Rel. Work - ½ yr.)	5	1½
(Mach. & Rel. Work - ½ yr.)		1½
(Print. & Rel. Work - ½ yr.)	5	1½
(W'dw'k. - Rel. Wk. - ½ yr.)		1½
Mechanical Drawing	2	1
Physical Education	2	1
	28	22

**Electives	Periods	Credits
Chorus	1	½
Music Appreciation	1	1
Orchestra	2-1	1-½
Band	2	1
Art (1) Beginners	2	1
Cooking (Boys)	2	1
Driver Education	1	1

You may elect one (1) or two (2) periods with Counselor's approval.

GRADE XI

Required		
English (3)	5	5
U. S. History	5	5
*Applied Mathematics (2)	4	4
Physical Education	1	½
	15	14½

*Algebra (1) 5-5 may be substituted with Counselor's approval

(A) Choose Two		
Elect. & Rel. Work	5	3
Mach. & Rel. Work	5	3
Mech. Drawing & Rel. Work	5	3
Wood. & Related work	5	3
Printing and Related Work	5	3
(B) May elect 1 to 5 periods		
Biology, Italian (1)	4	4
Economic Geography	4	4
Chorus, Orchestra, Band, Art (2)	2-1	1-½
Driver Education	1	1
Music Appreciation	1	1
Mechanical Drawing	4-2	2-1

GRADE XII

Required		
English (4)	5	5
Problems of Democracy	4	4
*Applied Mathematics (3)	4	4
Health	1	1
	14	14

*Geometry or Algebra (2) may be substituted with Counselor's approval.

(A) Choose One		
Elect. and Rel. Work	10	6
Mach. & Rel. Work	10	6
Mech. Dwg. & Rel. Work	10	6
Print. & Rel. Work	10	6
Wood. & Rel. Work	10	6
(B) May elect 1 to 6 periods		
Industrial Chemistry	4	4
Italian (2)	5	5
Chorus, Orchestra, Band	2-1	1-½
Driver Education	1	1
Music Appreciation	1	1
Mechanical Drawing	4-2	2-1
Physical Education	2-1	1-½

**ELECTIVES

GRADES XI and XII. The (B) electives permit a wide range of choices. A student with demonstrated ability may elect, with the Counselor's approval, a social study, a science, or a foreign language. Opportunities in art, music and orchestra are open to all. Students with high academic aptitude are encouraged to take Algebra and Geometry.

BUSINESS EDUCATION CURRICULUM I

STENOGRAPHIC

This curriculum is intended for those students who wish to train to become stenographers and secretaries. Students continuing this course in the Senior Year must do creditable work in Shorthand.

GRADE X

Required	Periods	Credits	**Electives	Periods	Credits
English (2)	5	5	Modern History	4	4
Economic Geography	4	4	Biology	4	4
Bookkeeping (1)	4	4	French (1)	4	4
Typewriting (1)	5	3	Italian (1)	4	4
Physical Education	2	1	Spanish (1)	4	4
	20	17			

GRADE XI

Required			**Electives		
English (3)	5	5	Bookkeeping (2)	4	4
U. S. History	5	5	French (2)	5	5
Shorthand (1)	5	5	Italian (2)	5	5
Typewriting (2)	5	3	Spanish (2)	5	5
Physical Education	2	1	General Chemistry	5	5
	22	19			

GRADE XII

Required			**Electives		
English (4)	5	5	French, Italian, Spanish (3)	4	4
Shorthand - Transcription	10	8	Bookkeeping (3)	5	5
(Office Machines - ½ yr.)		2	(Economics - ½ yr.)		2
(Math. of Business - ½ yr.)		2	(Commercial Law - ½ yr.)		2
Home Management - Girls	2	2	Problems of Democracy	4	4
Health	1	1	(Beg. Psychology - ½ yr.)		2
			(Occupational Inf. - ½ yr.)		2
			Physical Education	2	1
	22	20			

**ELECTIVES

GRADE X - You may elect six (6) periods of work, which must include one major subject. The non-academic electives offer opportunities for the development of cultural and hobby interests that should not be overlooked.

GRADE XI - You may elect six (6) periods of work, which must include a major subject.

GRADE XII - Girls may elect five (5) or six (6) periods of work and Boys six (6) or seven (7) periods, which must include a major subject.

NON-ACADEMIC ELECTIVES

Art - Beginners 1, Advanced 2	4-2	2-1	Chorus	2-1	1-½
Mechanical Drawing, Beginners 1, Advanced 2	4-2	2-1	Music Appreciation	1	1
Clothing, Beginners 1, Advanced 2	4-2	2-1	Orchestra	2-1	1-½
Driver Education	1	1	Band	2	1
Foods 1, 2, 3	2	1			

BUSINESS EDUCATION CURRICULUM II

BOOKKEEPING

This curriculum is intended for those students who wish training to become bookkeepers or accountants.

GRADE X

Required	Periods	Credits	**Electives	Periods	Credits
English (2)	5	5	Modern History	4	4
Economic Geography	4	4	Biology	4	4
Bookkeeping (1)	4	4	French (1)	4	4
Typewriting (1)	5	3	Italian (1)	4	4
Physical Education	2	1	Spanish (1)	4	4
	20	17			

GRADE XI

Required			**Electives		
English (3)	5	5	Shorthand (1)	5	5
U. S. History	5	5	General Chemistry	5	5
Bookkeeping (2)	4	4	French (2)	5	5
Typewriting (2)	5	3	Italian (2)	5	5
Physical Education	2	1	Spanish (2)	5	5
	21	18			

GRADE XII

Required			**Electives		
English (4)	5	5	French, Italian, Spanish (3)	4	4
Bookkeeping (3)	5	5	Shorthand - Transcription	10	8
(Economics - ½ yr.)	4	2	Typewriting (3)	4	3
(Commercial Law - ½ yr.)		2	(Beg. Psychology - ½ yr.)	4	2
Home Management - Girls	2	2	(Occupational Inf. - ½ yr.)		2
Health	1	1	Problems of Democracy	4	4
	17	17	(Office Machines - ½ yr.)	4	2
			(Math. of Business - ½ yr.)		2
			Physical Education	2	1

**ELECTIVES

GRADE X - You may elect six (6) periods of work, which must include one major subject. The non-academic electives offer opportunities for the development of cultural and hobby interests that should not be overlooked.

GRADE XI - You may elect six (6) or seven (7) periods of work, which must include a major subject.

GRADE XII - Elect a minimum of four (4) periods from the 6 major electives. Also, you may elect from two (2) to six (6) periods as desired and approved but you must not total over twenty-five (25) credits.

NON-ACADEMIC ELECTIVES

Art - Beginners 1, Advanced 2	4-2	2-1	Chorus	2-1	1-½
Mechanical Drawing, Beginners 1, Advanced 2	4-2	2-1	Music Appreciation	1	1
Clothing, Beginners 1, Advanced 2	4-2	2-1	Orchestra	2-1	1-½
Driver Education	1	1	Band	2	1
Foods 1, 2, 3	4-2	2-1			

BUSINESS EDUCATION CURRICULUM III

CLERICAL

This curriculum is intended for those who wish to obtain general office training and preparation leading to positions as clerks and salespeople.

GRADE X

Required	Periods	Credits	**Electives	Periods	Credits
English (2)	5	5	Modern History	4	4
Economic Geography	4	4	Biology	4	4
Bookkeeping (1)	4	4	French (1)	4	4
Typewriting (1)	5	3	Italian (1)	4	4
Physical Education	2	1	Spanish (1)	4	4
	20	17			

GRADE XI

Required			**Electives		
English (3)	5	5	Bookkeeping (2)	4	4
U. S. History	5	5	General Chemistry	5	5
Office Practice (1)	4	4	French (2)	5	5
Typewriting (2)	5	3	Italian (2)	5	5
Physical Education	2	1	Spanish (2)	5	5
	21	18			

GRADE XII

Required			**Electives		
English (4)	5	5	(Economics - ½ yr.)		2
Office Practice (2) & Mach.	4	4	(Commercial Law - ½ yr.) 4	4	2
Typewriting (3)	4	3	Bookkeeping (3)	5	5
(Ret.-Store Sales - ½ yr.)	4	2	Problems of Democracy	4	4
(Math. of Business - ½ yr.)		2	Physical Education	2	1
Home Management - Girls	2	2	(Beg. Psychology - ½ yr.)		2
Health	1	1	(Occupational Inf. - ½ yr.)	4	2
	20	19			

**ELECTIVES

GRADE X - You may elect six (6) periods of work, which must include one major subject. The non-academic electives offer opportunities for the development of cultural and hobby interests that should not be overlooked.

GRADE XI - You may elect six (6) or seven (7) periods of work, which must include a major subject.

GRADE XII - Girls may elect six (6) or seven (7) periods of work and Boys seven (7) or eight (8) periods, one of which must be a major subject.

NON-ACADEMIC ELECTIVES

Art - Beginners 1, Advanced 2	4-2	2-1	Chorus	2-1	1-½
Mechanical Drawing, Beginners 1, Advanced 2	4-2	2-1	Music Appreciation	1	1
Clothing - Beginners 1, Advanced 2	4-2	2-1	Orchestra	2-1	1-½
Foods 1, 2, 3	2	1	Band	2	1
Driver Education	1	1			

APPENDIX C

Carmichael Shorthand Learning Test, Semester I,

with Manual of Instructions

(copy)

MANUAL OF INSTRUCTIONS AND KEY

SHORTHAND LEARNING TESTS

Semester I--Complete Semester Period

GENERAL INSTRUCTIONS FOR ADMINISTERING TESTS

Sections I and IV require dictation. The dictation for Section IV must be taken on notebook paper provided by the pupil, and should be dictated before the printed tests are passed out. This material, which is a letter, consists of three minutes of dictation, one minute at 45, one minute at 50, and one minute at 55 words per minute, and is marked off in 15-second divisions. Do not transcribe this letter until all of the other sections of the test have been completed. Transcription may be done with pen or pencil, or upon the typewriter.

As soon as the dictation for Section IV has been completed, distribute the printed tests. Ask the pupils to turn to Section I and read the directions for the Dictation Test. The ten sentences which are found on page 2 of this manual are to be dictated for this test. The pupils must take the dictation on the ruled lines provided for this purpose. These sentences are not to be transcribed. Three or four words from each sentence are to be checked to measure the accuracy of the notes.

As soon as the dictation for Section I has been completed, have the pupils to proceed in regular order with the remaining sections of the test. Time all sections of the test accurately. READ THE DIRECTIONS AT THE BEGINNING OF EACH SECTION ALOUD TO YOUR PUPILS BEFORE YOU BEGIN THE TIMING. Allow 4 minutes for Section I, 3 minutes for Section II, 6 minutes for Section III, and 10 minutes for the transcription of the notes for Section IV. In no case are you to permit pupils to return to a section of the test after time has been called on that section.

THE DICTATION MATERIAL FOR SECTION IV

Use Current Date

(Begin timing)

Dear Mr. White:

Have you had a chance to examine any / of the new low-priced cars that are now on the market? If / not, you should plan to visit the auto show which is / being held this week in the old armory building by the // auto dealers of this city. (Par.)

The strong sales points in nearly all / new cars are beauty of design, charm, safety, and ease in / getting over the roads. When you see these new cars, you will agree that / they are smart in design, when you ride in one of them you will assert // that you are riding in ease, and when you drive this year's car you will / be thrilled for it takes the road readily and without danger to life. / (Paragraph)

If you want to see these wonderful values which are now on display, / come down to the exhibition pageant tonight.

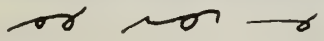
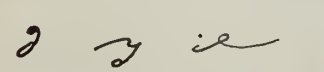
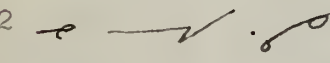
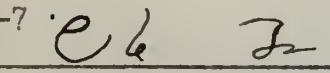
Yours truly,

Walter Jones //

THIS LETTER IS TO BE TRANSCRIBED ON THE SPACE PROVIDED IN SECTION IV. DO NOT TRANSCRIBE THIS LETTER UNTIL SECTION I, II, AND III HAVE BEEN COMPLETED. DISTRIBUTE THE PRINTED TESTS AND PROCEED AT ONCE WITH THE DICTATION FOR SECTION I.

THE DICTATION MATERIAL AND KEY FOR SECTION I

This material consists of 10 sentences based upon the first seven chapters of the Manual. The numbers in the column on the left indicate the chapters upon which each sentence is based. These sentences are to be dictated in four minutes, the first minute at 30, the second at 35, the third at 40, and the fourth at 45 words per minute. The material is marked off in 15-second divisions. Only the three or four underlined words in each sentence are to be checked. Do not tell the pupils upon which words they are to be checked. The underscoring in the dictation material is made only as an aid in scoring the papers. Check carefully, but bear in mind that the words were written under dictation, and they will lack the precision of words found in plates. Disregard proportion of characters, but stick strictly to correct spelling of words. The number of underscored words written correctly is the score. The highest possible score is 34 points.

CHAPTER KEY FOR SECTION I	DICTATION MATERIAL FOR SECTION I
1 	1. I will get your <u>ticket</u> for the / <u>track</u> <u>meet</u> and you can go with / me.
2 	2. A <u>fierce</u> campaign is being staged by / our <u>nation</u> against <u>classes</u> that pay no taxes. //
3 	3. The soldier was <u>easily</u> caught in the <u>coffee</u> / shop of the <u>hotel</u> early yesterday morning.
4 	4. The crew / liked <u>exceedingly</u> well the food which the women <u>cooked</u> / for the <u>spring</u> banquet.
5 	5. The <u>boys</u> could not <u>quite</u> // realize that the funny professor was a genius in <u>science</u>.
6 	6. It is <u>apparent</u> that the old <u>carpenter</u> <u>defrays</u> his winter / expenses by repairing vacant houses.
7 	7. There is <u>seldom</u> if ever / a <u>tendency</u> for <u>farmers</u> to guard themselves or their <u>resources</u>. //
1-2 	8. The mayor's <u>niece</u> <u>mentioned</u> nothing about her <u>headache</u> to <u>anyone</u> at / the party that evening.
3-4 	9. Paul's <u>sister</u> rowed the <u>yellow</u> boat through / the <u>angry</u> ocean <u>waves</u> with seemingly no fear.
*5-6-7 	10. He just <u>happened</u> / to recognize the <u>voice</u> of his companion in the concert last Wednesday. //

KEY FOR SECTION IV

Turn to page 1 of this Manual of Instructions for the copy of the Dictation Material for Section IV. The transcript will be scored for errors other than those in form and arrangement. The general rule of "anything that is not right is wrong" will be followed. This means that misspelled words, omission, insertion, and transposition of words, errors in the use of the hyphen, anything that is not right, are to be checked as errors. End-of-sentence punctuation must be in place. Other punctuation will not be penalized. Crossing out words will be penalized. Erasing, if neatly done, will not be penalized. Check carefully.

One word is deducted from the total gross words for each error made. The net words left after this deduction has been made is divided by "3" and the quotient becomes the score in points for this section of the test. For example: A pupil makes 9 errors. The total gross words are 150. 150-9 = 141. 141 ÷ 3 = 47 (Score in points). The highest possible score is 50 points.

*Each sentence contains one new word not found in the Gregg Shorthand Manual.

KEYS FOR SECTIONS II AND III

Allow one point for each item answered correctly in each of these sections. Misspelled words are to be counted wrong. In Section II, do not penalize a pupil if he gives more than one meaning for the words that have more than one meaning. If he gives more than one meaning, and one of the meanings is wrong, do not give any credit for that item. In Section II, stick strictly to the key on capitalization. The maximum score for each test is as follows: Section II, 34 points; Section III, 34 points.

SECTION II		SECTION III	
1. I	9. represent	1. long	18. custom
2. they	10. expect especial	2. Snow	19. through the
3. when	11. further	3. ground	20. enjoyed
4. about	12. car correct	4. since	21. fathers
5. must	13. except	5. December	22. they were
6. also	14. how out	6. beautiful	23. used
7. purpose	15. copy	7. remains	24. skating
8. collect	16. arrange arrangement	8. period	25. parties
	17. determine	9. carries	26. it would be
18. problem	27. of all	10. soft	27. family
19. response responsible	28. to honor	11. time	28. around
20. kindly	29. as good as	12. families	29. circles
21. remit remittance	30. at all	13. fireside	30. yore
22. letters	31. he had	14. winter	31. of
23. fall follow	32. at any time	15. pop	32. tendency
24. sooner	33. they do not know	16. stories	33. from
25. experience specially	*34. we want	17. good	34. fashion

*The brief forms and phrases in Section II are divided uniformly among the units of Chapters I to VII of the Gregg Manual.

S H O R T H A N D L E A R N I N G T E S T S

Complete Semester Period

Semester I

By

Vernal H. Carmichael
Associate Professor of
Business Education
Ball State Teachers College

Name _____ School _____

Boy _____ Girl _____ City _____

Class _____ Section _____ State _____

Date _____ Teacher _____

INSTRUCTIONS

Do not open this test until you are told to do so by your teacher. Fill in all of the blanks above.

Specific directions are given at the beginning of each section of the test. Read these directions carefully before beginning your work on any section.

There is a definite time limit for each section of the test. Spend no more time on any section than is indicated to be used for that section.

SUMMARY OF SCORES

Section and Test	Possible Score	Pupil's Score
Section I. Dictation Test	34	
Section II. Brief Forms and Phrases	34	
Section III. Reading Test	34	
Section IV. Transcription Test	50	
TOTAL SCORE	152	

SECTION I--DICTATION TEST

Time: 4 minutes

Score _____

DIRECTIONS: Ten sentences will be dictated to you. Each sentence contains 15 words. The dictation will begin at 30 words per minute and will be increased gradually until it reaches 45 words per minute. Write accurately, for three or four words in each sentence will be checked to measure the accuracy of your notes. Write small notes. Do your best.

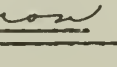
1.	6.
2.	7.
3.	8.
4.	9.
5.	10.

SECTION II--BRIEF FORMS AND PHRASES TEST

Time: 3 minutes

Score _____

DIRECTIONS: This is a vocabulary test on brief forms and phrases. The first three columns contain brief forms while the last column contains phrases. On the space immediately following each shorthand outline, write the correct longhand word or phrase. Write only one word or one phrase on each blank. Misspelled words will be counted wrong. Work as rapidly as you can. Do your best.

EXAMPLE: 0.  occasion

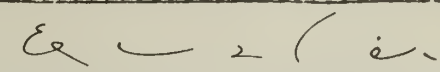
1.  _____	9.  _____	18.  _____	27.  _____
2.  _____	10.  _____	19.  _____	28.  _____
3. _____	11.  _____	20.  _____	29.  _____
4.  _____	12. _____	21.  _____	30.  _____
5.  _____	13. _____	22.  _____	31.  _____
6. _____	14.  _____	23.  _____	32.  _____
7.  _____	15.  _____	24.  _____	33.  _____
8. _____	16.  _____	25.  _____	34.  _____
	17.  _____	26.  _____	

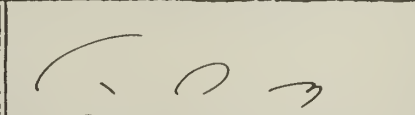
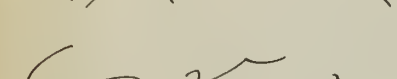
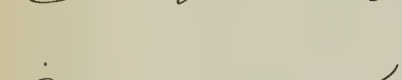
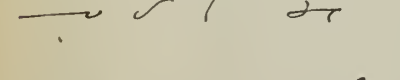
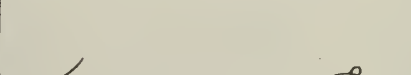
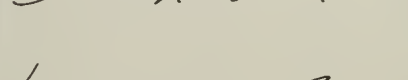
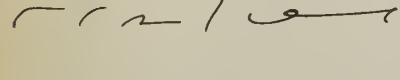
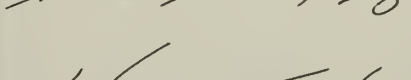
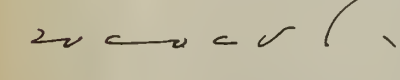
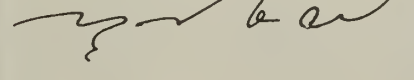
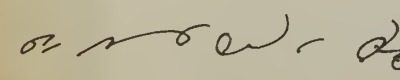
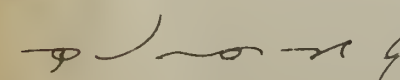
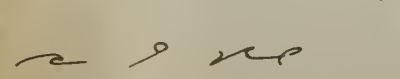
SECTION III--READING TEST

Time: 6 minutes

Score _____

DIRECTIONS: Read the paragraph given below. Write in longhand the word or phrase represented by the last combination in each line, in the space provided at the end of the line. Credit will not be given if more than one word or phrase is written in any one space. Misspelled words will be penalized. Work as rapidly as you can. Do your best.

EXAMPLE:  0 here

	1			18	
	2			19	
	3			20	
	4			21	
	5			22	
	6			23	
	7			24	
	8			25	
	9			26	
	10			27	
	11			28	
	12			29	
	13			30	
	14			31	
	15			32	
	16			33	
	17			34	

Time: 10 minutes

SECTION IV--TRANSCRIPTION TEST

Score_____

DIRECTIONS: Transcribe the letter to Mr. White on this page. You may transcribe with pen or pencil, or upon the typewriter. Write distinctly if you use a pen or pencil. Arrange the letter neatly upon the page. Crossing out of words will be penalized. Erasing, if neatly done, will not be penalized. Work as rapidly as you can. Do your best.

APPENDIX D

Turse-Durost Stenographic Achievement

Test, with Manual of Directions

TURSE-DUROST SHORTHAND ACHIEVEMENT TEST (Gregg)

By Paul L. Turse, A.M.
Chairman, Commercial Department
High School, Peekskill, New York

and Walter N. Durost, Ph.D.
Director, Division of Research and Test Service
World Book Company, Yonkers-on-Hudson, New York

MANUAL OF DIRECTIONS

For Use with Students in Training

Purpose of This Test

In constructing the Turse-Durost Shorthand Achievement Test the authors desired to satisfy four general requirements. First, the test must be a valid instrument for the measurement of shorthand achievement independent of other abilities, particularly typing, the spacing of a letter properly, etc. Secondly, the test must give proper emphasis to the various types of errors ordinarily made in taking and transcribing shorthand. These errors fall in three major categories; namely, language errors, errors caused by poor shorthand penmanship, and errors caused by lack of mastery of shorthand principles. In the third place, the test must be in such a form that it can be given within the limits of a single class period without sacrificing validity or reliability. Finally, the test must permit easy and rapid scoring by means of a strip key instead of requiring the laborious scoring of a verbatim transcript as has been required in most shorthand achievement tests in the past.

To satisfy these requirements, the authors have created a new form of shorthand achievement test. The dictated matter of each of the two equivalent forms, A and B, consists of five typical business letters, dictated in the usual way at varying speeds, depending upon the degree of experience. The letters are also recorded in the traditional fashion, but here the similarity with previous tests of shorthand achievement ends. Each pupil is given a test booklet containing a transcript of the five letters. However, each of the letters as transcribed contains errors and omissions which the pupil is required to correct and fill in from the shorthand notes. These corrections and additions are entered in the margin of the test booklet on lines provided for this purpose, making it possible to score the test by means of the strip key.

Provision has been made for administering this test to individuals in all stages of development and experience beyond the point of initial experience in transcribing connected discourse. In a public school situation it is not recommended for use earlier than the end of the first year of instruction. It has great value as a terminal test for first-year students or with business school students with equivalent training. It also may be used very helpfully during the second year and as a terminal test for second-year students.

A single form of the test may be given within one hour, although the time varies according to the level of experience due to variations in the speed of dictation.

The test may be used with any type of shorthand, but it is intended primarily for Gregg students and present norms are based entirely upon the performance of students studying Gregg.

Scores may be obtained within each of the three major areas into which common errors fall; namely, language skill, shorthand penmanship, and mastery of shorthand principles. The keys are arranged so that these part scores may be obtained if desired. These subscores are particularly valuable when the test is being used as a diagnostic instrument.[1]

Construction of the Test

The characteristic of the Turse-Durost Shorthand Achievement Test which makes it different from other tests of shorthand achievement now available is the use of a prepared transcript containing errors to be corrected by the student from his shorthand notes. The use of this form of measurement involves some peculiar difficulties. The greatest problem is in the choice of material to be dictated. It is necessary to prepare selections in such a way that plausible wrong responses can be recorded for a high proportion of the content without destroying the apparent continuity of the material. While doing this, it is necessary to balance the errors in the prepared transcript to cover adequately

[1] These subscores are meaningful only with students studying Gregg shorthand.

Published by World Book Company, Yonkers-on-Hudson, New York, and Chicago, Illinois

PRINTED IN U.S.A.

Edition a

the three major types of shorthand errors. As a first step in the construction of the test, a list of words was prepared based upon a sampling of shorthand principles; i.e., brief forms, prefixes, suffixes, etc. Contextual matter was then written around these specially prepared words in such a way as to embed them meaningfully in the context. Secondly, an analysis was made of transcription errors as reported by research studies in this field to determine the chief types of such errors and their causes. It was found that most errors of transcription are caused by:

a. Lack of knowledge of rules of punctuation, syllabification, paragraphing, etc.
b. Inability to spell
c. Incorrect, poorly proportioned, or incomplete outlines
d. Poor word sense or lack of knowledge of sentence structure
e. Improper proofreading of notes
f. Typing

The selections were further edited so that, in addition to testing the application of shorthand principles, they also cover the chief errors of transcription listed above, with the exception, of course, of typing. It was felt that typing constituted a special, or separate, skill and that it should not be allowed to complicate the measurement of shorthand achievement, but should be measured as a separate entity.

To summarize, test items were dispersed throughout each of the five letters in each form which would measure punctuation, paragraphing, syllabification, spelling, shorthand penmanship or outline proportion, and word sense or knowledge of sentence structure. Taking the five letters comprising either form, the various types of errors listed above were so balanced as to have a proper and reasonable weight in the total score.

Experimental Tryout

The material of both test forms, as outlined above, was given to 183 pupils in five high schools at the end of one year of shorthand study. An error analysis was then made which was used as a basis for revising and rearranging the context so as to get a more satisfactory order of difficulty. After the two forms were revised, they were given to 116 end-of-second-year pupils in four high schools. The scores on the revised test were correlated with teachers' marks. The resulting coefficient of .73 was deemed high enough to encourage further experimentation.

Minor modifications were made in the context and a third experimental edition was prepared. Both forms were given to 200 students completing two years of shorthand in several high schools. On the basis of these test results, split-half reliability coefficients were determined for each of the two forms. The resulting values when corrected by the Spearman-Brown formula were .97 for Form A and .94 for Form B. The intercorrelation of the two forms for this group was found to be .83. Considering the high degree of selection in second-year students of shorthand, these reliability coefficients were felt to be satisfactory. Test scores were correlated with teachers' marks for this group, and a value of .67 was obtained. Considering the fact that no attempt was made to allow for differences in marking procedure from one school to another, it was felt that this value was encouragingly high.

Another experiment was carried out, using this edition of the test involving the administration of both forms to about 200 students completing two years of shorthand instruction in Elizabeth, New Jersey. All students took Form A first. The dictation was spread over several days, but at the end of each session of dictation the pupils transcribed their notes literally and then corrected the test transcript.

The analysis of the data obtained in this experiment is summarized in Table 1. Briefly, Table 1 shows that the correction form of measuring shorthand achievement is, in terms of the data shown, slightly more reliable than the traditional procedure of measuring shorthand achievement by counting the errors in a verbatim transcript of the shorthand notes. We also note that the relation between the two methods of testing is the same, regardless of whether Form A or Form B is used. This is not surprising, considering the fact that the two sets of letters were made as nearly similar as possible. The estimated true correlation of .85 between the correction and verbatim form is high, but not as high as had been expected in the light of some earlier experimentation. The fact that the verbatim transcripts were scored by a group of high school secretarial students while the correction forms were scored by the senior author was thought to enter in as a possible factor to lower the correlation between the correction form and the verbatim form. In order to check upon this possibility and to establish more definitely the true relation between the two methods of scoring, a replicative experiment was decided upon following the same general pattern of the experiment described above.

TABLE 1

Summary of Preliminary Validity Experiment: Turse-Durost Shorthand Achievement Test

Subjects: 200 End-of-Second-Year Pupils in Battin Girls' High School, Elizabeth, New Jersey

Correlation of:	
Form A: Correction Form with Form B: Correction Form	.81
Form A: Verbatim Form with Form B: Verbatim Form	.78
Form A: Correction with Form A: Verbatim	.69
Form B: Correction with Form B: Verbatim	.69
Estimated True Correlation of Correction and Verbatim Forms	.85

Final Validity and Reliability Data

Following the experimental work described above, the final forms of the Turse-Durost Shorthand Achievement Test were printed in the regular booklet form for the purpose of securing norms. At the same time, a special edition of the test was prepared in a somewhat modified form. The introductory sheet and each of the ten letters in Forms A and B were reproduced on separate sheets. For example, Letter 1 of Form A was reproduced at the top of a page

while the bottom half of the page was lined off for taking dictation as in a stenographer's notebook. A perforation was inserted in the middle of the sheet, making it possible to separate the shorthand notes from the prepared transcript. Using this special edition, a final validity experiment was carried out involving approximately 100 end-of-second-year students in Yonkers, New York. In this experiment, one letter was dictated each day until all ten letters had been completed. The shorthand notes were inscribed on the bottom half of the page, and at the conclusion of the dictation the pupils first corrected the transcript appearing in the upper half of the sheet. This was then torn off and passed in to the teacher. Each pupil then made a literal transcript of her notes on a separate sheet of paper in longhand. The ten letters comprising the two forms were administered in the following order:

Form A, Letter 1	Form B, Letter 3
Form A, Letter 2	Form A, Letter 4
Form B, Letter 1	Form B, Letter 4
Form B, Letter 2	Form A, Letter 5
Form A, Letter 3	Form B, Letter 5

All of the literal transcripts involved in this experiment were scored by one person, as well as most of the correction forms. The remaining scoring was done by experienced scorers under the close supervision of the authors.

The results of the analysis of the data from this experiment are given in Table 2. In comparing the results of this experiment with the results obtained in the earlier validity tests, it is interesting to note that the reliability coefficients by the two methods, as determined in the two experiments, come out almost exactly the same. However, the correlation between the correction form and the verbatim form is considerably higher in the second experiment. This is no doubt due, in part, to the fact that the correlation given is based upon all ten letters in the second experiment. When the reliability of the total test — that is, of all ten letters — is estimated by means of the Spearman-Brown formula for both methods of testing, identical reliability coefficients of .88 result.[1] Using this value in the formula for correcting for attenuation gives an estimated true correlation of 1.00 between the two methods. In other words, one must conclude from this experiment that the two methods of measuring shorthand achievement are getting at fundamentally identical skills. Consequently, if one is willing to accept a verbatim transcript of shorthand notes as a valid measure of achievement, one must by the same logic accept the correction form as an equally valid measure of shorthand achievement.

TABLE 2

SUMMARY OF FINAL VALIDITY EXPERIMENT: TURSE-DUROST SHORTHAND ACHIEVEMENT TEST

Subjects: 100 End-of-Second-Year Pupils, High School of Commerce, Yonkers, New York

Correlation of:	
Form A: Correction Form with Form B: Correction Form	.78
Form A: Verbatim Form with Form B: Verbatim Form	.79
Form A *plus* Form B: Correction Form with Form A *plus* Form B: Verbatim Form	.89
Reliability of:	
Form A *plus* Form B: Correction Form (Corrected by Spearman-Brown Formula)	.88
Form A *plus* Form B: Verbatim Form (Corrected by Spearman-Brown Formula)	.88
Estimated True Correlation of Correction and Verbatim Forms (Correction for Attenuation)	1.00

DIRECTIONS FOR ADMINISTERING

In planning a testing schedule, allow fifteen or twenty minutes for the actual dictation and thirty-five minutes for the correction of the transcript.

Testees should be supplied with pen or pencil, an eraser, and several sheets of shorthand notebook paper. Two points on one pencil or an extra pencil or pen should be available in case of emergency. Examiner should use a stop watch for timing the dictation, which is marked off in 15 second intervals.

Do not dictate spelling, punctuation, or paragraphing, or in any way suggest places where errors will occur.

Pass out the test papers and then say:

> "Please fill in the information called for at the top of the first page. Do not make any other marks on the test booklets or open the pages until you receive further instructions."

After sufficient time has been allowed for securing the information required on the cover page, say:

> "You are going to try a new type of shorthand transcription test, but you will take dictation in the usual manner. Do not give up at any time during the test, but get as much of the dictation as you can. In order that you may understand directions more clearly, you will all take a trial test. I shall read the correct answers. You will then score your own paper. You may then ask questions before the real test begins. Get ready for the trial dictation. Get your paper or notebook ready. Pick up your pen or pencil. Take this dictation in *shorthand*. Ready . . .?"

Then dictate the following trial test. Dictate slowly enough so that everyone gets all the trial dictation. Permit no interruptions or questions while dictation is in progress.

Dictation for Trial Test

> Dear Sir: Your letter arrived yesterday and we are sorry you can't attend the meeting. Please do not worry, for we shall send you a list of all

[1] This value should not be considered comparable to the split-half coefficients reported on page 2. In this latter case a different method of splitting the material was used, the testing was spread over a longer period of time, and the population was considerably more homogeneous.

the topics which will be discussed so that you will know what took place. Let us know if you will attend the meeting next week. Yours truly,

After the trial letter is dictated, say to the group:

"Now look at the trial test copy on the cover sheet of your booklet. Each line contains one or more errors or omissions in punctuation, spelling, or context. When the signal is given, you are to compare each shorthand outline in your notes carefully with each word in the transcription copy. Indicate, *in longhand*, the necessary corrections *in each line* in the space provided *in the right margin*. Whenever you supply punctuation marks, write also the word which *precedes* or includes the mark. In all other corrections, indicate only the *correct* word or words or spelling according to your notes. Paragraphs are to be indicated by a capital 'P.' Ready . . .? Go ahead!"

Allow about three minutes on the trial test. Then read the following correct answers for the trial test or write them on a blackboard if available. *Do not read (or write) the material in parentheses. This is for the examiner's information.*

a. *arrived*	(misspelling)
b. *can't attend*	(apostrophe and "attend" omitted)
c. *worry send top-*	(omission, spelling, syllabification)
d. *discussed*	(incorrect word)
e. *place. P will*	(paragraph after "place," incorrect word)
f. *the Yours*	(incorrect word, capital "y" in "yours")

Answer any questions testees may have and reëmphasize the following directions:

1. Only numbered lines at the right are to be used for corrections.
2. Each correction must be made *in longhand* on its proper line.
3. Punctuation marks must be indicated by writing also the word which precedes or includes the mark.
4. Paragraphs are to be indicated by a capital "P."
5. Capitalization at beginning of sentences need not be indicated.
6. No longhand is to appear in the notes except for figures or proper names.
7. Write answers rapidly but not carelessly. Do not take too much time for items which seem difficult but skip them and try them again later if you have time.

Dictation for Real Test (Form A and Form B)

The following letters are to be dictated strictly in accordance with the time indicated in the parentheses. Note that the letters are timed differently for first-year and for second-year students. *Be sure to use the letters with the appropriate timing.* Permit no questions or interruptions during the dictation. Do not indicate punctuation except by normal voice inflection. *Dictate all five letters before beginning the transcription.* Pause ten seconds after the dictation of each letter.

FORM A

For First-Year Students

I. Gentlemen: When an old friend suddenly stops calling (*15 sec.*) it becomes a matter of great concern to you. (*30 sec.*) Frequently you entertain the thought that in (*45 sec.*) some way you have been at fault. That (*1 min.*) is what we fear when we examine our records and find that (*1 : 15*) your account with us has not been used for some time. We (*1 : 30*) note that our claim for the automobile parts which were lost in (*1 : 45*) transit still remains unsettled and that there is a balance accrued in (*2 : 00*) your favor of $12.63. In adjusting these matters it would be more convenient (*2 : 15*) for us to pay the amount due you and have our claim settled by a (*2 : 30*) remittance from you. However, it will be agreeable to us if you prefer to forward (*2 : 45*) the parts just mentioned. May we count on your continued friendly business relations? Yours very truly, (*3 : 00*)

For Second-Year Students

I. Gentlemen: When an old friend suddenly stops calling it becomes a matter of great concern (*15 sec.*) to you. Frequently you entertain the thought that in some way you have been at fault. That (*30 sec.*) is what we fear when we examine our records and find that your account with us has not (*45 sec.*) been used for some time. We note that our claim for the automobile parts which were lost in transit still (*1 min.*) remains unsettled and that there is a balance accrued in your favor of $12.63. In adjusting these matters it (*1 : 15*) would be more convenient for us to pay the amount due you and have our claim settled by a remittance from you. However, (*1 : 30*) it will be agreeable to us if you prefer to forward the parts just mentioned. May we count on your continued friendly business relations? Yours very truly, (*1 : 45*)

FORM A (Continued)

For First-Year Students

II. Gentlemen: We are very sorry to learn that (*15 sec.*) the articles sold you last month did not (*30 sec.*) come up to your requirements. Even though you (*45 sec.*) have used part of the order, if you (*1 min.*) will return the cards, clips, and pencils, we shall allow you credit (*1 : 15*) to be applied on future orders. With us it is "Service Always" — a (*1 : 30*) motto we adopted for our own use when we began business thirty-three years ago. (*1 : 45*) Ideal products have been leading the market in quality ever since that (*2 : 00*) time. Won't you let us hear from you soon regarding this order? We are anxious (*2 : 15*) to clear up the matter to your entire satisfaction. In order that the (*2 : 30*) adjustment may be made in time for your opening and that you may not incur (*2 : 45*) financial loss, we suggest that you use the enclosed air mail card. Respectfully, (*3 : 00*)

III. Dear Sir: We regret to learn of the inconvenience (*15 sec.*) caused Smith & Company through the negligence of an (*30 sec.*) employee. However, as you knew that our (*45 sec.*) clerk changed both the quoted and catalog prices, (*1 min.*) you should have reported the fact immediately. Now we must look more (*1 : 15*) carefully into the nature of Smith & Company's complaint and, if the (*1 : 30*) circumstances warrant it, we shall be forced to allow them the reduction (*1 : 45*) of 40¢ claimed on each article ordered. We hope that this error (*2 : 00*) will not cause embarrassing personnel changes in your office and that this firm will (*2 : 15*) retain its prominent place on our list of satisfied customers. Under the conditions we thought (*2 : 30*) it would be unnecessary that payment be made on the small overdue balance on their (*2 : 45*) October invoice. However, the September and August orders should be paid in full. Cordially yours, (*3 : 00*)

IV. Dear Sir: We do not understand how you (*15 sec.*) arrived at the figure indicated as the net proceeds on (*30 sec.*) the consignment shipment made to you on August 5. (*45 sec.*) We have a receipted bill in our possession showing (*1 min.*) payment of both interest and principal in full. Recent correspondence discloses that (*1 : 15*) you mistook the rebate on the old bill to be 20% (*1 : 30*) which really was 2%. We regret that it was necessary for us (*1 : 45*) to decline your blanket offer to take care of all our wants. (*2 : 00*) We feel the necessary adaptation cannot be made without considerable detriment to us. However, please (*2 : 15*) feel free to submit an alternate plan. If such a plan can be effected whereby (*2 : 30*) serious delays may be averted and if all legal aspects can be reviewed by our (*2 : 45*) counsel, we may reconsider your proposal. Without advice from him we cannot act. Yours truly, (*3 : 00*)

For Second-Year Students

II. Gentlemen: We are very sorry to learn that the articles sold you last month did (*15 sec.*) not come up to your requirements. Even though you have used part of the order, if you (*30 sec.*) will return the cards, clips, and pencils, we shall allow you credit to be applied on future orders. (*45 sec.*) With us it is "Service Always" — a motto we adopted for our own use when we began business thirty-three (*1 min.*) years ago. Ideal products have been leading the market in quality ever since that time. Won't you let us hear from you (*1 : 15*) soon regarding this order? We are anxious to clear up the matter to your entire satisfaction. In order that the adjustment may be (*1 : 30*) made in time for your opening and that you may not incur financial loss, we suggest that you use the enclosed air mail card. Respectfully, (*1 : 45*)

III. Dear Sir: We regret to learn of the inconvenience caused Smith & Company through the (*15 sec.*) negligence of an employee. However, as you knew that our clerk changed both the quoted and catalog (*30 sec.*) prices, you should have reported the fact immediately. Now we must look more carefully into the nature of (*45 sec.*) Smith & Company's complaint and, if the circumstances warrant it, we shall be forced to allow them the reduction of (*1 min.*) 40¢ claimed on each article ordered. We hope that this error will not cause embarrassing personnel changes in your office (*1 : 15*) and that this firm will retain its prominent place on our list of satisfied customers. Under the conditions we thought it would be (*1 : 30*) unnecessary that payment be made on the small overdue balance on their October invoice. However, the September and August orders should be paid in full. Cordially yours, (*1 : 45*)

IV. Dear Sir: We do not understand how you arrived at the figure indicated as the (*15 sec.*) net proceeds on the consignment shipment made to you on August 5. We have a receipted bill (*30 sec.*) in our possession showing payment of both interest and principal in full. Recent correspondence discloses that you mistook (*45 sec.*) the rebate on the old bill to be 20% which really was 2%. We regret that it was necessary (*1 min.*) for us to decline your blanket offer to take care of all our wants. We feel the necessary adaptation cannot be made without (*1 : 15*) considerable detriment to us. However, please feel free to submit an alternate plan. If such a plan can be effected whereby serious delays (*1 : 30*) may be averted and if all legal aspects can be reviewed by our counsel, we may reconsider your proposal. Without advice from him we cannot act. Yours truly, (*1 : 45*)

FORM A (Continued)

For First-Year Students

V. Dear Mr. King: I am sorry to see (*15 sec.*) that Mr. Smith was suspended for his consistently (*30 sec.*) irregular transfers of our surplus funds. I have (*45 sec.*) reviewed the correspondence of several applicants who should (*1 min.*) have precedence over others for the vacancy now created in our plant. (*1 : 15*) One applicant is unusually well recommended. Furthermore, he is specifically qualified (*1 : 30*) for the managerial post by virtue of his proved ability to anticipate (*1 : 45*) the problems of overproduction and because of his knowledge of the laws (*2 : 00*) passed on the recommendations of the Board of Trade. He has a similar knowledge of stock (*2 : 15*) market conditions. For that reason I greatly believe he will consistently oppose any speculation with (*2 : 30*) investors' funds. If an interview were granted him by our personnel staff, I am sure (*2 : 45*) it would reveal other desirable qualifications which did make him valuable to all of his former employers. Yours sincerely, (*3 : 00*)

For Second-Year Students

V. Dear Mr. King: I am sorry to see that Mr. Smith was suspended for his consistently (*15 sec.*) irregular transfers of our surplus funds. I have reviewed the correspondence of several applicants who should have precedence (*30 sec.*) over others for the vacancy now created in our plant. One applicant is unusually well recommended. Furthermore, he is (*45 sec.*) specifically qualified for the managerial post by virtue of his proved ability to anticipate the problems of overproduction and because (*1 min.*) of his knowledge of the laws passed on the recommendations of the Board of Trade. He has a similar knowledge of stock (*1 : 15*) market conditions. For that reason I greatly believe he will consistently oppose any speculation with investors' funds. If an interview were granted him (*1 : 30*) by our personnel staff, I am sure it would reveal other desirable qualifications which did make him valuable to all of his former employers. Yours sincerely, (*1 : 45*)

FORM B

For First-Year Students

I. Gentlemen: Two thousand customers can't be wrong. (*15 sec.*) That is how we feel every time one of them (*30 sec.*) writes of the remarkable protection and wear he (*45 sec.*) is receiving from the Rover tire. Spring will soon (*1 min.*) be here; vacation plans will then begin. Your car (*1 : 15*) may need new tires to insure your comfort and safety on that long (*1 : 30*) trip. Why not let Rover tires take you there? Remember, a money-back (*1 : 45*) guarantee protects you if Rover tires do not give you the satisfaction (*2 : 00*) we promise. A trade-in allowance can be made on your old tires. The order (*2 : 15*) blank you will find enclosed is for your convenience. We suggest that you just indicate (*2 : 30*) the style and size you like and then mail it if you wish. Your order (*2 : 45*) will be immediately filled. Motor farther and safer on Rovers — tires supreme. Sincerely yours, (*3 : 00*)

II. Dear Sir: At a recent meeting of our club (*15 sec.*) it was decided that the budget for the (*30 sec.*) coming year would be increased by $200. You will (*45 sec.*) be interested in this decision because otherwise it would have been necessary (*1 min.*) for us to cancel our tentative order placed with you for (*1 : 15*) books and supplies. Now the order may be officially released, shipment to be (*1 : 30*) made promptly via the New York Central Railroad. We are taking this opportunity (*1 : 45*) to remind you that we made a complaint to you quite some time past (*2 : 00*) regarding a mimeograph which you sent us without a feed roll attachment which we had (*2 : 15*) to replace at our own expense. You promised repeatedly that this complaint would be quickly (*2 : 30*) and thoroughly investigated but no action has yet been taken. Will you please adjust (*2 : 45*) this matter soon so that our books may be closed for the present fiscal period? Truly yours, (*3 : 00*)

For Second-Year Students

I. Gentlemen: Two thousand customers can't be wrong. That is how we feel every time one (*15 sec.*) of them writes of the remarkable protection and wear he is receiving from the Rover tire. Spring (*30 sec.*) will soon be here; vacation plans will then begin. Your car may need new tires to insure your (*45 sec.*) comfort and safety on that long trip. Why not let Rover tires take you there? Remember, a money-back guarantee (*1 min.*) protects you if Rover tires do not give you the satisfaction we promise. A trade-in allowance can be made on your (*1 : 15*) old tires. The order blank you will find enclosed is for your convenience. We suggest that you just indicate the style and size (*1 : 30*) you like and then mail it if you wish. Your order will be immediately filled. Motor farther and safer on Rovers — tires supreme. Sincerely yours, (*1 : 45*)

II. Dear Sir: At a recent meeting of our club it was decided that the budget for (*15 sec.*) the coming year would be increased by $200. You will be interested in this decision because otherwise (*30 sec.*) it would have been necessary for us to cancel our tentative order placed with you for books and supplies. (*45 sec.*) Now the order may be officially released, shipment to be made promptly via the New York Central Railroad. We are taking this (*1 : 00*) opportunity to remind you that we made a complaint to you quite some time past regarding a mimeograph which you sent us without (*1 : 15*) a feed roll attachment which we had to replace at our own expense. You promised repeatedly that this complaint would be quickly and thoroughly (*1 : 30*) investigated but no action has yet been taken. Will you please adjust this matter soon so that our books may be closed for the present fiscal period? Truly yours, (*1 : 45*)

FORM B (Continued)

For First-Year Students

III. Dear Sir: According to reports of our dealers, (*15 sec.*) defects have been encountered in the sealing of (*30 sec.*) our products. Of course, the problem is not (*45 sec.*) ours alone because all manufacturers of staple articles (*1 min.*) have experienced a similar condition. If we can improve the blend of our (*1 : 15*) stock and at the same time solve our packaging difficulties, and if this (*1 : 30*) improvement will not be attended by an increase in price, we may (*1 : 45*) find a possible solution to our merchandising problem. I am sure (*2 : 00*) if we did do this, it would be to the advantage of all dealers and (*2 : 15*) to their customers. If you have any suggestions or criticisms regarding this matter, (*2 : 30*) please let me have them before the next meeting of the executive committee. I am (*2 : 45*) returning herewith your financial statement which has been formally approved by the head of the auditing department. Yours truly, (*3 : 00*)

IV. Dear Sir: Let us assure you that the (*15 sec.*) delay in acknowledging your report is regretted exceedingly. (*30 sec.*) However, you must bear in mind that the (*45 sec.*) financial distress in our city is now greater (*1 min.*) than it is in yours and that the same unselfish surveys which (*1 : 15*) you have made for our corporation in the past must be continued (*1 : 30*) in order to prevent further decline in business. We are, therefore, sending (*1 : 45*) your plan to the Board of Directors. In all probability unified action (*2 : 00*) will be taken lest the plan become susceptible to political manipulation. As you know, (*2 : 15*) the specifications call for a superior type of hook-up. Therefore, we must postpone the (*2 : 30*) undertaking pending the decision of the electrical experts and the officials of the power line. (*2 : 45*) We must insist upon an inclusion of their statements as a part of your proposal. Truly yours, (*3 : 00*)

V. Dear Sir: As a dealer in realty you (*15 sec.*) are acquainted with the problems involved in attracting (*30 sec.*) buyers. Often you lose a sale because a (*45 sec.*) roof needs resurfacing or because a spare room (*1 min.*) is lacking or because the needed capital is not available to furnish (*1 : 15*) some minor repairs or adjustments desired by prospective purchasers. In many instances (*1 : 30*) you may have found it necessary to make reversions to your former rigid (*1 : 45*) policy of making no repairs to property for sale. Whatever your (*2 : 00*) problem may be, we feel sure you can profit by membership in our coöperative union. (*2 : 15*) Our sole purpose will be to aid anyone who holds membership in the organization in (*2 : 30*) dealing with his repair problems. The enclosed letter, describing heat resistants and other building materials, (*2 : 45*) will show some phases of the various types of service we attempt. Yours truly, (*3 : 00*)

For Second-Year Students

III. Dear Sir: According to reports of our dealers, defects have been encountered in the sealing of (*15 sec.*) our products. Of course, the problem is not ours alone because all manufacturers of staple articles have experienced (*30 sec.*) a similar condition. If we can improve the blend of our stock, and at the same time solve (*45 sec.*) our packaging difficulties, and if this improvement will not be attended by an increase in price, we may find a (*1 : 00*) possible solution to our merchandising problem. I am sure if we did do this, it would be to the advantage of all (*1 : 15*) dealers and to their customers. If you have any suggestions or criticisms regarding this matter, please let me have them before the (*1 : 30*) next meeting of the executive committee. I am returning herewith your financial statement which has been formally approved by the head of the auditing department. Yours truly, (*1 : 45*)

IV. Dear Sir: Let us assure you that the delay in acknowledging your report is regretted exceedingly. (*15 sec.*) However, you must bear in mind that the financial distress in our city is now greater (*30 sec.*) than it is in yours and that the same unselfish surveys which you have made for our corporation (*45 sec.*) in the past must be continued in order to prevent further decline in business. We are, therefore, sending your plan to the (*1 min.*) Board of Directors. In all probability unified action will be taken lest the plan become susceptible to political manipulation. As you (*1 : 15*) know, the specifications call for a superior type of hook-up. Therefore, we must postpone the undertaking pending the decision of the electrical (*1 : 30*) experts and the officials of the power line. We must insist upon an inclusion of their statements as a part of your proposal. Truly yours, (*1 : 45*)

V. Dear Sir: As a dealer in realty you are acquainted with the problems involved in (*15 sec.*) attracting buyers. Often you lose a sale because a roof needs resurfacing or because a spare room (*30 sec.*) is lacking or because the needed capital is not available to furnish some minor repairs or adjustments desired (*45 sec.*) by prospective purchasers. In many instances you may have found it necessary to make reversions to your former rigid policy (*1 : 00*) of making no repairs to property for sale. Whatever your problem may be, we feel sure you can profit by membership (*1 : 15*) in our coöperative union. Our sole purpose will be to aid anyone who holds membership in the organization in dealing with his repair (*1 : 30*) problems. The enclosed letter, describing heat resistants and other building materials, will show some phases of the various types of service we attempt. Yours truly, (*1 : 45*)

When the last letter has been dictated, say:

> "That completes the dictation. You will be allowed *seven minutes* in which to correct the transcript of each letter from your notes. Do the best you can with each letter. If you complete a letter before time is called, go right on to the next letter. Ready! Go!"

At the end of the first seven minutes (and at fourteen, twenty-one, and twenty-eight minutes) say:

> "Time is up. Go on to the next letter."

When thirty-five minutes have elapsed, say:

> "Stop. Please put your notes inside your test booklets."

Then collect the papers.

Directions for Scoring

A copy of the Key and Directions for Scoring is included with each package of tests. Complete directions for using the Key appear on the Key itself.

Interpretation of Results

Need for norms. Raw scores, in and of themselves, are not particularly meaningful. They serve to arrange pupils in rank order of their achievement, but do not give any indication as to how the individual stands in relation to his growth. In order to provide such information, the Turse-Durost Test has been given to a large number of students who have completed one or two years of shorthand, and percentile norms corresponding to total raw scores are provided for the two groups. These norms are found in Table 3.[1]

A percentile rank on this test is interpreted in the usual way. For example, if a student gets a score of 52 at the end of one year of instruction, his percentile rank will be 10, which means that 10 per cent of the normative groups made scores as low or lower than 52, while 90 per cent of the total group in the norm population exceeded this score. If a student finishing two years of instruction obtains a score of 148 on the test, his percentile rank will be 80, which means that 80 per cent of the second-year group have scores as low or lower than 148, while 20 per cent of the group exceeded this score. Since the total possible score on Form A is 190 points, it can be seen that the test has sufficient "top"; that is, it is sufficiently difficult to measure the abilities of the most able students completing two years of shorthand instruction.

Interpreting subscores. In addition to total score on the tests, it is possible to derive a subscore in each of the three major areas covered by the test; namely, language skill, shorthand principles, and shorthand penmanship. Instructions for obtaining these subscores are given on the scoring key. The use of these subscores is optional, but it greatly enhances the diagnostic value of the test if they are employed.

The authors do not feel that the subscores are sufficiently reliable to justify setting up percentile norms in each of the three areas. Letter ratings have been established, however, and assigned on the basis of the normal curve of

TABLE 3

Percentile Ranks Corresponding to End-of-Year Total Raw Scores[2]

Form A

Test Score	Percentile 1st yr.	Percentile 2nd yr.	Test Score	Percentile 1st yr.	Percentile 2nd yr.	Test Score	Percentile 1st yr.	Percentile 2nd yr.
15	1		67	22	1	119	78	30
16	1		68	23	1	120	79	31
17	1		69	24	1	121	80	33
18	1		70	25	1	122	81	34
19	1		71	26	1	123	82	35
20	1		72	27	1	124	83	37
21	1		73	28	2	125	84	38
22	1		74	29	2	126	85	40
23	1		75	30	2	127	86	41
24	1		76	31	2	128	87	43
25	2		77	32	2	129	88	45
26	2		78	33	2	130	89	46
27	2		79	34	3	131	89	48
28	2		80	35	3	132	90	49
29	2		81	36	3	133	91	51
30	3		82	37	3	134	91	53
31	3		83	38	3	135	92	54
32	3		84	39	4	136	93	56
33	3		85	40	4	137	93	58
34	3		86	41	4	138	94	60
35	4		87	42	4	139	94	62
36	4		88	43	5	140	95	64
37	4		89	45	5	141	95	66
38	4		90	46	5	142	96	68
39	4		91	47	6	143	96	70
40	5		92	48	6	144	97	72
41	5		93	49	7	145	97	74
42	5		94	50	7	146	97	76
43	6		95	51	8	147	97	78
44	6		96	52	8	148	98	80
45	6		97	53	9	149	98	82
46	7		98	54	9	150	98	83
47	7		99	55	10	151	98	85
48	8		100	56	10	152	99	86
49	8		101	58	11	153	99	87
50	9		102	59	12	154	99	89
51	9		103	60	12	155	99	90
52	10		104	61	13	156	99	91
53	11		105	62	14	157	99.5	92
54	11		106	63	15	158		92
55	12		107	64	16	159		93
56	12		108	65	17	160		94
57	13		109	67	18	161		95
58	14		110	68	19	162		96
59	15		111	69	20	163		97
60	15	1	112	70	21	164		98
61	16	1	113	71	22	165		99
62	17	1	114	72	23	166		99
63	18	1	115	73	25	167		99
64	19	1	116	75	26	168		99.5
65	20	1	117	76	27	169		99.5
66	21	1	118	77	28	170		99.5

[1] The present end-of-first-year norms are based upon data from 13 communities; an equal number of communities coöperated in establishing the norms for end-of-second-year pupils. While these norms show every internal evidence of stability, additional data will be gathered, and as the need becomes evident, revised norms will be issued.

[2] These percentile norms apply to the total test score on Form A only. Comparable percentile norms for Form B will be issued later when the equivalence of the forms has been more satisfactorily established.

distribution. The ratings include five levels of ability: A, B, C, D, and E. C is average performance and includes individuals plus and minus one-half standard deviation from the mean. In the normal curve this would include about 38 per cent of the cases. A letter rating of B or D would be assigned to 24 per cent of the cases respectively; i.e., to individuals from one-half to one and one-half standard deviation above or below the mean. Ratings of A or E would be assigned to approximately 7 per cent; this includes individuals who deviate from the mean by more than one and one-half standard deviation. The scores corresponding to these letter ratings are indicated in Table 4.

TABLE 4

LETTER RATING CORRESPONDING TO PART SCORE: FORM A

RATING	SCORE CORRESPONDING TO RATING						RATING
	FIRST YEAR			SECOND YEAR			
	Part I	Part II	Part III	Part I	Part II	Part III	
E = Failing .	0–2	0–5	0–34	0–7	0–11	0–70	E
D = Borderline	3–5	6–11	35–58	8–11	12–17	71–91	D
C = Average .	6–9	12–17	59–86	12–15	18–21	92–107	C
B = High Aver.	10–14	18–22	87–104	16–19	22–25	108–116	B
A = Superior .	15+	23+	105+	20+	26+	117+	A

Suggestions for using the test results. If the Turse-Durost Test is given at the end of one year of instruction, perhaps its major usefulness will be (1) to determine those students who should drop shorthand and (2) to section those students who will continue the study of shorthand during the second year. It is impossible to say in any dogmatic way what percentile rank should be obtained by a student to justify his continuing the study of shorthand; it depends upon the local situation. However, under conditions existing in many communities, the proportion of those advised to drop shorthand will be very high, in some instances amounting to more than 50 per cent of the group who had begun the study of shorthand. The most reasonable procedure in such a situation is to limit advanced instruction to that number of pupils who have a reasonably good chance of being absorbed by industry and commerce at the completion of their course of study. In many situations available facilities will determine those pupils who should continue the study of shorthand. But regardless of the basis of deciding how many pupils can be accommodated or should be accommodated for advanced study, the test results will afford an objective basis for eliminating those who should not continue.

If subscores have not been obtained on the first scoring of the test papers, such scores should be obtained for those pupils who are to continue the study of shorthand a second year. With this information available, the teacher is then able to plan her work to meet the needs of the individuals in her classes. Special remedial instruction should be given to all pupils whose letter ratings in a given area are D or E. Those pupils who receive a rating of C in any one or more of the subareas should be warned to give special attention to the area or areas in question. Pupils whose ratings are B or A can be assumed to have satisfactory performance in the areas in question and attention can be concentrated on the development of skill.

In interpreting the test results for second-year pupils, the major emphasis should be put upon the total score. Individuals making scores in the top 20 to 25 per cent of the group according to the national norms probably are capable of going directly to commercial or industrial work, but those pupils whose scores fall below the 75th percentile will probably find difficulty in holding stenographic positions in the business world. If these individuals are determined to seek employment as stenographers, their tests should be scored diagnostically, and if possible in the time available special remedial instruction should be given in the subareas where the students are weakest. This should be followed by intensive drill and practice until they can achieve scores equaling or exceeding the 75th percentile on the test.

ACKNOWLEDGMENTS

The authors wish to express their sincere appreciation and gratitude to all those who have contributed to the construction of this test. They are especially grateful to those who assisted in the earlier stages of its development. The list is too long to include by name, but the names of the communities included in the norm population will be furnished on request.

TURSE–DUROST
STENOGRAPHIC ACHIEVEMENT TEST (Gregg)

By Paul L. Turse, A.M.
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High School, Peekskill, New York

and Walter N. Durost, Ph.D.
Director, Division of Research and Test Service
World Book Company, Yonkers-on-Hudson, New York

FORM
A

Name..... Date..... 19.....

Birthday..... Age..... Classification.....
Month Day Year

Examiner..... How many semesters have you studied shorthand?.....

Skills	Score	Rating or %-ile
Language skills		
Shorthand penmanship		
Shorthand principles		
Total score		

TRIAL LETTER

Make all corrections in the spaces below.

Dear Sir:

Your letter arived yesterday and we are sorry you cant (*blank*) the meeting. Please do not (*blank*) for we shall sent you a list of all the topics which will be described so that you will know what took place let us know if you can attend this meeting next week. yours truly,

*a.*_____
*b.*_____
*c.*_____
*d.*_____
*e.*_____
*f.*_____

Do not turn this page. Wait for further instructions.

Published by World Book Company, Yonkers-on-Hudson, New York, and Chicago, Illinois

PRINTED IN U.S.A. TDSAT: A–1

LETTER I

Make all corrections in the spaces below.

Gentlemen:

When an old (*blank*) stops calling it becomes a 1._____
(*blank*) of great (*blank*) to me. Frequently you (*blank*) 2._____
the lot that in some way you have been at (*blank*). 3._____
That is what we feel when we consult our records and 4._____
fined that your credit with us has not been (*blank*) 5._____
for some time. We know that our claim for the (*blank*) 6._____
bids which were lowest in (*blank*) still remains unpaid 7._____
and that there is a balance (*blank*) in your favor or 8._____
$12.63. In (*blank*) these matters it would be more 9._____
(*blank*) for you to pay the amount to us and have our 10._____
grain settled by a (*blank*) from you. However, it will be 11._____
(*blank*) to us if you prefer to fit the parts just 12._____
mentioned. May we (*blank*) on your continuing free business 13._____
(*blank*)? Very truly yours, 14._____

LETTER II

Gentlemen:

We are very sorry to remark that the article 15._____
sold you last month would not come up at your (*blank*) 16._____
even though you have used part of the orders, if 17._____
you will return the cards, (*blank*) and pencils, we 18._____
shall allow you (*blank*) to be appealed on future 19._____
orders. With us it is service always a motto we adapted 20._____
for our own use when we begun business thirty three years 21._____
ago. Ideal products have been rating the market 22._____
in quantity even since that time. Wont you let us 23._____
here from you soon (*blank*) the order. We are (*blank*) 24._____
to clear up the matter for you entirely satisfactory. 25._____
In order that the correction may be made in time for 26._____
your (*blank*) and that you may not suffer (*blank*) loss, we 27._____
(*blank*) you use the enclosed air male card. Respectively, 28._____

Make all corrections in the spaces below.

LETTER III

Dear Sir:

We (*blank*) to learn of the (*blank*) considered 29.
Smith & Company through the (*blank*) of an employee. 30.
However, if you know that our clerk charged both 31.
the coded and catalog prices, you should have 32.
considered the fact immediately. Now we must move 33.
most carefully into the matter of Smith & Companys 34.
(*blank*) and, if the (*blank*) warrant it, we shall be 35.
forced to allow them the (*blank*) of 40% claimed on 36.
each (*blank*) ordered. We hope that this (*blank*) will 37.
not cause (*blank*) personal charges in your office 38.
and that your (*blank*) will (*blank*) its permanent place 39.
on our list of satisfactory customers. Under the 40.
conditions we wrote it would be (*blank*) that paym- 41.
ent be met on the former overdue balance on our August 42.
invoice. However, the September and (*blank*) orders 43.
should be bid in for you. Cordially yours, 44.

LETTER IV

Dear Sir:

We do not (*blank*) how you arrived at the 45.
figure (*blank*) as the made procedes on the (*blank*) 46.
shipment made to you on October 5. We have a 47.
recent bill in our (*blank*) showing payment of both 48.
balance and principle in full. Our correspondent 49.
discloses that you mistake the repayment on the 50.
whole bill to be 20% which really owes 2%. We 51.
(*blank*) that it was necessary for us to (*blank*) your 52.
(*blank*) offer to take care of all our orders. We feel 53.
the necessary adaption cannot be made without conside- 54.
rable (*blank*) to us. However, please feel free 55.
to (*blank*) an (*blank*) plan. If such a plan can be 56.
affected (*blank*) serious delays may be (*blank*) and if 57.
all regular (*blank*) can be refused by our council, 58.
we may (*blank*) your offer. Without advise from him, 59.
we cannot accept. Yours truly, 60.

LETTER V

Make all corrections in the spaces below.

Dear Mr. King:

I am sorry to say that Mr. Smith was sustained in his consistently illegal transfer of our people's funds. I have refused the correspondence of several applications who should have preference over others for the (*blank*) now created in our (*blank*). One applicant is (*blank*) well recommended. Furthermore, he is especially (*blank*) for the agriculture post by virtue of his proved ability to (*blank*) the problems of underproduction and because of his knowledge of the loss based on the recommendations of the Board of Trade. He has a familiar knowledge of stock market conditions. For that reason I (*blank*) believe he will constantly oppose money (*blank*) with investors funds. If an (*blank*) were guaranteed him by our (*blank*) staff, I am sure it would refer other desirable (*blank*) which would make him valuable to all of us formal employees. Yours sincerely,

61._____
62._____
63._____
64._____
65._____
66._____
67._____
68._____
69._____
70._____
71._____
72._____
73._____
74._____
75._____
76._____
77._____

APPENDIX E

Personal Trait Rating Chart

with Instructions for Rating

(copy)

RATING CHART

Please rate pupil in the following qualities according to the directions given on the "Instruction for Rating" sheet

Name _____ Subject Teacher _____

Class of _____ Grade _____ Date _____ Course _____ H. R. _____

Ratings	Poor	Fair	Good	Excellent	Remarks
Personality					
Appearance					
Reliability					
Initiative					
Courtesy					
Cooperation					
Self Control					
Work Habits					

(copy)

GUIDANCE DEPARTMENT WATERTOWN PUBLIC SCHOOLS

INSTRUCTIONS FOR RATING

The "Rating Chart" is devised for the purpose of getting an accumulation of independent judgments regarding those individual qualities which the world finds so valuable. The accuracy of such judgments requires a clear understanding of what is meant by the trait to be rated, as well as an opportunity of actually observing the student in regard to this trait.

The traits used in the Rating Chart are briefly described as follows:

1. Personality

This should be interpreted in general sense. Consider it as that group of qualities which makes one individual stand out from another; gets along well with others; is cheerful and sympathetic; people attracted to him, etc.

2. Appearance

General appearance--being well-groomed, having good posture, etc.

3. Reliability

Conscientious in following instructions
Is dependable and honest
Gives careful and thorough attention to work

4. Initiative

Does things without being told
Is intellectually curious
Will overcome obstacles.

5. Courtesy

Is polite and gentlemenly or ladylike
Is considerate of others
Is not rude in speech or actions

6. Co-operation

Works well with others --- teamwork
Willingly takes part in group activities
Subordinates self to the group

7. Self Control

Exercises control over habits, actions, speech
Is emotionally stable
Shows desirable social adjustment and agreeable social conduct

8. Work Habits

Keeps busy and makes good use of study time
Plans time and work in an efficient manner
Ignores distractions and concentrates on work until finished

GENERAL DIRECTIONS

1. Be sure you understand what you are trying to rate before starting
2. Do not consult nor be influenced by the ratings which other teachers have given Please make independent judgments
3. If you have not had sufficient occasion to observe the student in regard to a particular trait do not attempt to judge him
4. In rating a student on a particular trait disregard every other trait but that one
5. Remember you are rating pupils. In making your judgment of a pupil compare him with others his own age.
6. The ratings should be thought of as on a scale from the lowest to the highest. Thus a check mark, by its position to the left or right of center under Excellent, Good, Fair, or Poor, will express the degree of that rating.
7. When you have satisfied yourself as to the rating to be given a pupil, please place a small check mark ( ) in the proper column. Please use colored pencil.
8. Special remarks are desirous concerning the pupil's attitude, character, behavior, etc. and may be written to the right or on the back of the chart.

DATE DUE

MAY 7	1963		

Morrison, Robert L.
Prognosis of shorthand achievement at Watertown High School, Watertown Massachusetts.